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JC604 U.S. PTO

ATTORNEY DOCKET: JWB-98-9-P

JC511 U.S. PTO
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10/22/98

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SIR:

Transmitted herewith for filing is the patent application of

Inventor(s): Mordechai Turi and Michael Kauschke

For: Disposable Elastic Absorbent Article Having Retaining Enclosures

- ☒ 27 Sheet(s) of drawings (Informal) consisting of Figures 1-37
- ☒ An assignment of the invention to First Quality Enterprises, Inc.
- ☐ A certified copy of a _____ application
- ☒ An associate power of attorney
- ☒ A verified statement to establish small entity status under 37 CFR 1.9 and 37 CFR 1.27
- ☒ Assignment Form Cover Sheet
- ☒ Check for \$40.00 for filing Assignment

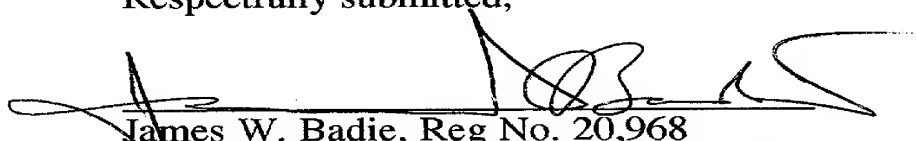
The filing fee has been calculated as shown below:

	(Col.1)	(Col.2)	SMALL ENTITY		OTHER THAN A SMALL ENTITY	
FOR:	No. Filed	No.Extra	Rate	Fee	Rate	Fee
Basic Fee				\$395		\$790
Total Claims	16 -20	= 0 *	x11	\$	x22	\$
Indep Claims	9 -3	= 6 *	x41	\$246	x82	\$
Multiple Dependent Claim Presented			x135	\$	x270	\$
			TOTAL	\$641	TOTAL	\$

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Respectfully submitted,


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Serial or Patent No. _____
Filed or Issued: _____
For: Disposable Elastic Absorbent Article Having Retaining Enclosures

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) and 1.27(c) - SMALL BUSINESS CONCERN)

I hereby declare that I am

- ☐ the owner of the small business concern identified below:
☒ an official of the small business concern empowered to act on behalf of
the concern identified below:

Name of Concern First Quality Enterprises, Inc.
Address of Concern Clinton County Industrial Park, North Road,
McElhattan, Pennsylvania

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 CFR 121.3-18, and reproduced in 37 C.F.R. 1.9(d), for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled: Disposable Elastic Absorbent Article Having Retaining Enclosures by inventor(s) Mordechai Turi and Michael Kauschke described in

- ☒ the specification filed herewith
☐ application serial no. _____, filed _____
☐ patent no. _____, issued _____

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below and no rights to the invention are held by any person, other than the inventor, who could not qualify as a small business concern under 37 CFR 1.9(d) or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e). *NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

NAME _____
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I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Name of person signing Kambiz Damaghi
Title of person other than owner Executive Vice President
Address of person signing 80 Cuttermill Road, Suite 409, Great Neck, NY 11021
Signature [Signature] Date 05, 12, 98

**Attorney Docket No.
JWB-98-9-P**

**DISPOSABLE ELASTIC ABSORBENT ARTICLE
HAVING RETAINING ENCLOSURES**

Inventors

**Mordechai Turi
Michael Kauschke**

RELATED APPLICATION

This application is a continuation-in-part of pending application serial number 09/097,198 filed June 12, 1998.

FIELD OF THE INVENTION

The present invention relates generally to absorbent articles such as disposable diapers, and is more particularly related to infant training pants and adult incontinent underpants, briefs and guards used for absorption and containment of urine and other body exudates. More particularly, the present invention relates to such adult incontinent articles which are easy to wear, securely fit against the body contours for effective prevention against leakage of urine and other body exudates, and which are also easy to remove. In one particular aspect, this invention relates to adults incontinent underpants, briefs and guards having retaining enclosures for preventing body exudates from leaking through the article during use.

BACKGROUND OF THE INVENTION

Disposable absorbent articles such as disposable baby diapers and adult incontinent briefs, underpants, guards and the like articles are widely used in homes and various health care facilities and institutions. Indeed the use of such articles has become

a common sanitary practice, and while initially such absorbent articles were used mostly for baby care, more recently their use has been expanded for adults as well. In both instances, the absorbent article must be designed to effectively prevent leakage of urine and other fecal materials, while insuring body fit and comfort.

Present commercially available absorbent articles are generally unitary in structure, pre-shaped and pre-folded, and comprise an absorptive pad having a liquid permeable top sheet facing the wearer's body, a liquid impermeable backsheet on the opposite side, and an absorbent sheet or panel disposed between the top sheet and the back sheet. The absorbent article comprises a front side portion, a crotch portion and a backside portion, and further includes elastic members along the circumference of the waist and around the leg openings. While the heretofore commercially available absorbent articles have been somewhat effective against leakage of body fluids and fecal materials, and have therefore met some degree of acceptability, they have not been entirely satisfactory for their intended applications. In other words, they have not proven to be entirely leak proof, nor have they completely prevented issuance of the body exudates outside the diaper or the underpants. These deficiencies are primarily due to inadequate and loose body fit, which result in leakage of the body fluids and solids through the

legs' openings. These problems are even more pronounced in case of adults because of their diverse body shapes and varying contours. Another disadvantage of the commercially available absorbent articles such as diapers, incontinent briefs and the like, is associated with the ability of opening and removing the soiled article without soiling the wearer's legs or body.

There is a plethora of patents which disclose the different attempts made by the prior art workers over the years to eliminate, or at least minimize, the shortcomings of the present commercially available absorbent articles.

United States Patent No. 4,795,454 describes an absorbent article provided with an elastically contractible gasketing cuff formed by a gasketing flap and a flap elastic member and a barrier cuff having a flap portion and a channel portion. A seal means for adjoining the proximal edge to the gasketing flap is positioned along the proximal edge so as provide a leak resistant seal along the proximal edge.

United States Patent No. 5,599,338 describes a disposable diaper provided with a first and second flap formed from or attached to the bodyside liner.

The flaps may be folded inwardly and the respective ends thereof may be bonded to the bodyside liner so that edges of flaps are directed toward a centerline of the garment.

PCT WO96/17570//EP 796066 describes a disposable diaper having a waist pocket cuff which has first and second portions separable along a releasable seam. The releasable seam can be formed by overlapping portions of the first and second portions of the pocket cuff. In one embodiment the releasable seam includes a mechanical fastener for securing together the first and second portions of the pocket cuff.

EP 0 707 466 describes an absorbent sanitary article which comprises an absorbent pad between a backing sheet and a covering sheet. The covering sheet comprises a central opening which extends above the absorbent pad and sets of elastic means are fixed to the covering sheet along the longitudinal edges of the central opening. The article is characterized in that it comprises a set of two hydrophobic flaps which are symmetrical with respect to the longitudinal axis.

Notwithstanding attempts by the prior art workers to provide absorbent articles with improved body fit and protection against leakage of body exudates, nevertheless additional improvements are needed for providing a more suitable absorbent article.

The foregoing patents by no means constitute an exhaustive list of the patents which reflect the efforts of the prior art workers in this field, but are merely illustrative for background purposes. As it can be appreciated, however, notwithstanding attempts by others to provide satisfactory absorbent articles for infants as well as for incontinent adults, there is still a need for providing improved articles commercially, which are highly effective in preventing leakage of urine and other body exudates, and which are comfortable to wear and conformably fit the body contours so as to insure against such leakage and prevent soiling the wearer's body as well as the person who applies the garment to the wearer.

Accordingly, it is an object of the present invention to provide a disposable absorbent article such as baby diapers, adult incontinent underpants, briefs, guards and the like articles, which overcome the deficiencies and shortcomings of the prior art absorbent articles, including the present commercially available products used for this purpose.

It is another object of this invention to provide a disposable absorbent articles which, due to its unique construction, provide improved fit to the body and prevent leakage of urine and other body exudates through the leg openings by providing the article with exudate-retaining enclosures.

It is also an object of this invention to provide such disposable absorbent articles which have tensionable elastic elements which insure body fit and conformal movements in response to the body shape and contours, and provides for examination of the condition of the article.

The foregoing and other objects and features of the present invention will be more fully comprehended and appreciated from the ensuing detailed description and the figures in the drawing which form parts of the application.

SUMMARY OF THE INVENTION

In accordance with this invention an integral disposable elasticized absorbent article is provided having a front waist portion, a back waist portion, a crotch portion, a pair of spaced apart leg openings, an absorbent core member, and means for fastening the absorbent body snugly to the body of the wearer. In one embodiment of the invention the absorbent article has an elasticized barrier layer

securely fixed at the longitudinal and lateral sides of the body and having inner elasticized edges. The elasticized barrier layer overlies a portion of the absorbent core and forms a retaining enclosure between said barrier layer and said portion of the absorbent core.

In different embodiments of the invention the elasticized barrier layer comprises two or more segments which form retaining enclosures with the underlying portions of the core member.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, wherein like reference numerals designate like parts:

Figure 1 is a perspective view of an absorbent article, in stretched position, according to one embodiment of the invention;

Figure 1A is a cutaway view of the absorbent article shown in Figure 1 with a portion removed.

Figure 2 is a perspective view of the absorbent panel of the absorbent article shown in Figure 1, in bowed position;

Figure 3 is a sectional view taken along the line 3-3 in Figure 2;

Figure 4 is a stretched plan view of the absorbent article shown in Figure 1;

Figure 5 is a sectional view taken along the line 5-5 in Figure 4;

Figure 6 is a sectional view taken along the line 6-6 in Figure 4;

Figure 7 is a sectional view taken along the line 7-7 in Figure 4;

Figure 8 is a perspective view of an absorbent article according to another embodiment of the invention;

Figure 8A is a cutaway view of the absorbent article shown in Figure 8 with a portion removed;

Figure 9 is a stretched plan view of the absorbent article shown in Figure 8;

Figure 10 is a sectional view taken along the line 10-10 in Figure 9;

Figure 11 is a sectional view taken along the line 11-11 in Figure 9;

Figure 12 is a sectional view taken along the line 12-12 in Figure 9;

Figure 13 is a sectional view taken along the line 13-13 in Figure 13;

Figure 14 is a perspective view of an absorbent article according to yet another embodiment of the invention;

Figure 14A is a cutaway view of the absorbent article shown in Figure 14 with a portion removed;

Figure 15 is a stretched plan view of the absorbent article shown in Figure 14;

Figure 16 is a sectional view taken along the line 16-16 in Figure 15;
Figure 17 is a sectional view taken along the line 17-17 in Figure 15;
Figure 18 is a sectional view taken along the line 18-18 in Figure 15;
Figure 19 is a sectional view taken along the line 19-19 in Figure 15;
Figure 20 is a perspective view of an absorbent article made according to another embodiment of the invention;

Figure 20A is a cutaway view of the article shown in Figure 20 with portion removed;

Figure 20B is a perspective view of the absorbent panel of the absorbent article shown in Figure 20, in bowed position;

Figure 21 is a stretched plan view of the absorbent article shown in Figure 20;

Figure 22 is a sectional view taken along the line 22-22 in Figure 21;

Figure 23 is a sectional view taken along the line 23-23 in Figure 21;

Figure 24 is a sectional view taken along the line 24-24 in Figure 21;

Figure 25 is a perspective view of an absorbent article according to another embodiment of this invention;

Figure 26 is a stretched plan view of the absorbent article shown in Figure 25;

Figure 27 is a sectional view taken along the line 27-27 in Figure 26;

Figure 28 is a sectional view taken along the line 28-28 in Figure 26;

Figure 29 is a perspective view of an absorbent article made according to still another embodiment of the invention;

Figure 30 is a stretched plan view of the absorbent article shown in Figure 29;

Figure 31 is a sectional view taken along the line 31-31 in Figure 30;

Figure 32 is a sectional view taken along the line 32-32 in Figure 30;

Figure 33 is a perspective view of a further embodiment of the present invention;

Figure 34 is a perspective view of the absorbent pad of the absorbent article shown in Figure 33, in bowed position;

Figure 35 is a stretched plan view of the embodiment shown in Figure 33;

Figure 36 is a sectional view taken along the line 36-36 of Figure 35, and

Figure 37 is a sectional view taken along the line 37-37 of Figure 35.

DETAILED DESCRIPTION OF THE INVENTION

Referring to the drawings, first to Figures 1-7, there is shown, in Figure 1, an absorbent article generally designated as 100, in the form of a brief in a stretched position. The term "brief" as used herein is intended to refer to disposable garments worn below the lower part of the torso by incontinent persons and also comprises disposable articles such as baby diapers, adult incontinent underpants, guards and the like articles. The absorbent article 100 comprises a back waist region 101, a front waist region 103 and a crotch region 105. As shown in Figures 5, 6, and 7, the absorbent article 100 comprises a liquid pervious top sheet or layer 107 facing the body of the wearer, a liquid impervious backsheet 109 which is usually coextensive with the top layer 107, and an absorbent core or pad 111 disposed between the top sheet 107 and backsheet 109. An acquisition layer 113 between the top sheet 107 and the absorbent layer 111 serves to temporarily retain the body exudates and slowly distribute them through the absorbent pad 111. These layers are sealed to each other to form a composite sheet.

Referring again to Figure 1, the absorbent article 100 is provided with the fastening means or tabs such as the left fastening tab 115A and the right tab 115B, both attached to the back waist portion 101. These fastening tabs are

employed to secure the absorbent article around the body of the wearer. The absorbent article 100 also comprises the leg openings 117,119 through which the legs of the wearer extend when the article is worn.

The uniqueness of the absorbent article of this invention as shown, for example, in Figures 1-7, resides in the provision of retaining enclosures for retaining the exudates and preventing the exudates from leaking through the article during its use. In addition, this unique structure provides for longitudinal and lateral forces for improved snug body fit which are particularly effective during body movements when the article is soiled.

As is further shown in Figure 1, the absorbent article 100 comprises the barrier layer 121 defined by four segments 121A, 121B, 121C and 121D which overlies the absorbent region 110 and form the exudate retaining enclosures A, B, C and D (see Figure 3). The barrier layer 121 is secured to the insider surface of the absorbent article by a suitable adhesive or by some other suitable means. Each of the segments 121A, 121B, 121C and 121D has an inner (relative to the longitudinal sides of the article) elasticized edge such as the elasticized edges 123A, 123B, 123C and 123D. The elasticized edges 123A and 123B are secured together at 125 while the elasticized edges 123C and 123D are joined together at 127. The

elasticized edges are joined together adhesively or may be stitched together if desire. The elasticized edges 123A, 123C can overlap each other to form the dual protection barrier 129 near the leg opening 119 and the elasticized edges 123B and 123D can overlap each other near the leg opening 117 to form a double protection barrier 131. The cutaway view in Figure 1A illustrates the extension of the elastic edge 123B from a point on the lateral side of the absorbent pad 111 which is substantially perpendicular to the longitudinal axis X-X to a point at the longitudinal side of the absorbent layer.

The barrier layer segments 121A, 121B, 121C and 121D may be fabricated from a vapor pervious non-woven material and may be a single layer or multilayer sheet. Such material is available from First Quality Fibers, Inc., McElhattan, Pennsylvania, as 17 GSM (gram per square meter) SMS (spunbond/melt blown/spunbond) non-woven grade 172 BWH.

The other materials used in the construction of the absorbent article of the invention are of the type and variety known in the art and are described in several patents such as, for example, United States Patent No. 4,695,278 and United States Patent No. 4,795,454.

Thus, the liquid pervious top layer 107 is a compliant soft material which is not irritating to the skin. Such material can be made from porous foams, reticulated foams, plastics, natural fibers, such as wood or cotton fibers, synthetic fibers such as polyester or polypropylene fibers, or made from a combination of said materials. A suitable polypropylene material is available from First Quality Fibers, Inc., McElhattan, Pennsylvania, as grade 15 ILWH.

The liquid impervious backsheet or layer 109 is preferably manufactured from a thin flexible plastic film such as polyethylene film available from Clopay Plastic Products Company, Cincinnati, Ohio, as grade DH-203.

The absorbent layer 111 may be manufactured from a wide variety of liquid absorbent materials of the type usually used in manufacturing disposable diapers and other absorbent articles. Such materials include comminuted wood pulp, creped cellulose wadding, absorbent foams, absorbent sponges, super absorbent polymers or a combination of said materials.

The acquisition layer 113 is made from a nonwoven material which temporarily retain the exudates and distributes them in the absorbent layer. Such

material is available from American Nonwoven Corporation, Columbus, Mississippi, as grade RB-265-14-B/R.

The construction adhesives employed in the present invention is a hot melt adhesive available from Reynolds, Inc., Greenville, South Carolina as Reynolds Code No. 51-942.

The composite sheets formed by the different layers of the absorbent pad are shown in Figures 5, 6, and 7 and they are basically the same as the composite sheet structure described in copending application serial number 09/149,265 filed September 8, 1998. Thus, as shown in Figure 5, the top layer 107 is adhesively secured to the backsheet 109 by the construction adhesive 133. As is also shown in Figures 5, 6 and 7, the elastic elements 135 are attached along their lengths to the backsheet 109 by the elastic adhesive 136 (see, e.g., Figure 5). The elastic adhesive is available from H.B. Fuller of St. Paul, Minnesota, as type HL-1434-X-ZP.

The embodiment shown in Figures 8-13 is basically similar to the embodiment illustrated in Figure 1. However, the elasticized edges of the barrier layer segments intersect at a point which is spaced away from the lateral edges of the absorbent article. Thus, the absorbent article 200 in Figure 8 comprises a back waist

region 201, a front waist region 203 and the crotch portion 205. As shown in Figures 10, 11, 12 and 13, the absorbent article 200 comprises a liquid pervious top sheet or layer 207 facing the body of the wearer, a liquid impervious backsheet 209 which is usually coextensive with the top layer 207, an absorbent core or pad 211 between the layers 207 and 209, and an acquisition layer 213 disposed between the top sheet 207 and the absorbent layer 211. The acquisition layer 213 serves to temporarily retain the body exudates and slowly distribute them through the absorbent pad 211. These layers are sealed to each other to form a composite sheet.

The absorbent article 200 is also provided with the left fastening mean or tab 215A and a right fastening mean or tab 215B, both attached to the backwaist portion 201. As in the embodiment of Figure 1, the fastening means serve to secure the absorbent article around the body of the wearer. The absorbent article 200 further comprises the leg openings 217, 219 through which the legs of the wearer extend when the article is worn. As in the embodiment shown in Figure 1, the absorbent article shown in Figure 8 comprises the barrier layer segments 221A, 221B, 221C and 221D which overlie the absorbent region 210 and form therewith the retaining enclosures A¹, B¹, C¹ and D¹, respectively. Each of the segments 221A, 221B, 221C and 221D has an inner elasticized edge such as the elasticized edges

223A, 223B, 223C and 223D. The elasticized edges 223A and 223C cross each other near the leg opening 219, to form the dual protection barrier 229, and the elasticized edges 223B and 223D overlap each other to form the dual protection barrier 231 near the leg opening 217. The elasticized edges 223A and 223B also cross each other near the front lateral edge of the absorbent pad 211 and are secured thereto to form the front double protection barrier 225, and similarly the elasticized edges 223C and 223D cross each other at the opposite (rear) lateral edge of the absorbent region 210 to form a rear double protection barrier 227. These double barrier protection layers assure the integrity of the structure and provide for more improved protection against leakage of the body exudates.

In the remaining embodiments, the structure of the absorbent pad is basically the same as in the embodiments illustrated in Figures 1-13 and hence they will only be described briefly. Other features of the absorbent articles in the embodiments illustrated by Figures 14, 20, 25 and 29 are also similar as in the previous embodiments except for the barrier layer segments which overlie the absorbent layer. Thus, the absorbent article 300 shown in Figures 14-19 has a backwaist portion 301, a front waist portion 303, a crotch portion 305, a liquid pervious top sheet or layer 307, a liquid impervious backsheet 309, an absorbent layer 310, an acquisition layer 315 (see Figures 17-19), the fastening means or tabs 315A, 315B, and the leg openings

317, 319. The absorbent article in Figure 14 also comprises the barrier layer segments 321A, 321B, 321C and 321D which overlie the absorbent region 310 and form therewith the retaining enclosures A², B², C² and D², respectively. Each of the segments 321A, 321B, 321C and 321D has an inner elasticized edge 323A, 323B, 323C and 323D. The elasticized edges 323A and 323D are secured to each other by glue, mechanically or by stitching such as at 325 in spaced relation to the front lateral edge of the absorbent article, and the elasticized edges 323B and 323C are fixed at the back lateral edge of the absorbent pad, and are spaced apart from each other as in 326 and 327. The elasticized edges 323A and 323C cross each other near the leg opening 317 and define the double protection barrier 329 and, similarly, the elasticized edges 323B and 323D cross each other near the leg opening 317 and define the double protection barrier 331. As in the previous embodiments, these double protection barrier layers assure the integrity of the structure and provide additional protection against leakage of the body exudates.

In the embodiment illustrated in Figures 20-24, the absorbent article 400 has a backwaist portion 401, a front waist portion 403, a crotch portion 405, a liquid pervious top sheet or layer 407, a liquid impervious backsheet 409, an absorbent pad 411, an acquisition layer 413, the fastening means or tabs 415A, 415B, and the leg openings 317, 319. The absorbent article in Figure 20 also comprises the barrier layer

segments 421A and 421B having opposed, spaced-apart inner (relative to the lateral side edges of the absorbent article) arch-shaped elasticized edges 423A and 423B which partly overlap and define a generally oval region 410 of the absorbent panel 411. The barrier layer segments 421A, 421B with their respective elasticized edges 423A, 423B define the retaining enclosures A³, B³ which serve to retain the body exudates. The arch-shaped elasticized inner edges 423A and 423B cross one another near the leg openings 417, 419 thus forming the double protection barriers 425, 427 for added structural integrity and improved protection against leakage of the body exudate.

The absorbent article shown in Figures 25-28 has a backwaist portion 501, a front waist portion 503, a crotch portion 505, a liquid pervious top sheet or layer 507, a liquid impervious backsheet 509, an absorbent pad 511, an acquisition layer 513, the fastening means or tabs 515A, 515B, and the leg openings 517, 519. The absorbent article in Figure 25 also comprises the barrier layer segments 521, 523 in generally triangular configuration and form the retaining enclosures A⁴, B⁴ between the absorbent region 510 and the barrier layer segments 521, 523. The barrier layer segments 521, 523 have inner elastic edges 521^A, 523^B which are secured together and fixed at 525 in spaced relation to the backwaist lateral edges of the absorbent

article. Each of the elastic edges 521A and 523B is fixed to the absorbent article as in 526,527, on the longitudinal side edge the front waist side of the absorbent article.

The absorbent article illustrated in Figures 29-32 is basically similar to the embodiment shown in Figure 25. Thus, the absorbent article 600 in Figure 29 has a backwaist portion 601, a front waist portion 603, a crotch portion 605, a liquid pervious top sheet or layer 607, a liquid impervious backsheet 609, an absorbent pad 611, an acquisition layer 613, the fastening means or tabs 615A, 615B, and the leg openings 617, 619. The absorbent article in Figure 29 also comprises the overlying barrier layer segment 621 having an inner elasticized edge 623 which forms a retaining enclosure A⁵ between the absorbent region 610 and the barrier layer 621. The ends of the elasticized edges 623 are fixed as at 625,627.

Referring to Figures 33-37, the absorbent article 700 has a backwaist portion 701, a front waist portion 703, a crotch portion 705, a liquid pervious top sheet or layer 707, a liquid impervious backsheet 709, an absorbent pad or core 711, an acquisition layer 713, the fastening means or tabs 715A, 715B and the leg openings 717,719. The absorbent article 700 also comprises the overlying barrier layer segments 721,723 disposed, respectively, to the left and right of the absorbent region 710. The left barrier layer segment 721 spans substantially the length of the absorbent

pad and has a generally convex-shaped (relative to the longitudinal axis Y-Y) inner elasticized edge 725 which is fixed to the absorbent article at 726 and 728, and the right barrier segment 723 spans substantially the length of the absorbent pad and has a generally convex-shaped inner elasticized edge 727 which is also fixed to the absorbent article at 726 and 728. The inner elasticized edge 725,727 define a generally oval region 729 below which the absorbent region 710 is clearly visible. Thus, the left barrier layer segment 721 and its underlying portion of the absorbent region 710 define the exudate retaining enclosure A⁶, and the right barrier layer segment 723 and its underlying portion of the absorbent region 710 define the exudate retaining enclosure B⁶, both more clearly shown in Figure 35.

While the present invention has been described and illustrated with reference to several embodiments with certain degree of specificity, it can be appreciated that other embodiments and modifications are obvious to those skilled in the art based on the detailed description herein without departing from the scope of the invention.

CLAIMS:

1. An integral disposable elasticized absorbent article comprising:
 - (a) an absorbent body having a front waist portion, a back waist portion, a crotch portion and a pair of spaced apart leg openings;
 - (b) an absorbent core member;
 - (c) means for fastening said absorbent body to the body of the wearer; and
 - (d) an elasticized barrier layer overlying portion of said absorbent core member and secured to said absorbent body thereby defining a retaining enclosure for retaining body exudates, between said barrier layer and said portion of absorbent core member.
2. An integral disposable elasticized absorbent article as in claim 1 wherein said elasticized barrier layer comprises barrier segments, each segment being secured to said absorbent body to form a retaining enclosure between each barrier layer segment and portion of said absorbent core member.
3. An integral disposable elasticized absorbent article comprising:
 - (a) an absorbent body having a front waist portion, a back waist portion, a crotch portion and a pair of spaced apart leg openings;

(b) an absorbent core member having a liquid pervious top layer facing the body of the wearer, a liquid impervious back layer substantially coextensive with said liquid pervious layer, and a liquid absorbent layer disposed between said top layer and said back layer;

(c) means for fastening said absorbent body to the body of the wearer, and

(d) an elasticized barrier layer overlying portion of said absorbent core member and secured to said absorbent body thereby defining a retaining enclosure between said barrier layer and said core member.

4. An integral disposable elasticized absorbent article as in claim 3 wherein said elasticized barrier layer comprises barrier segments, each segment being secured to said absorbent body to form a retaining enclosure between each barrier layer segment and portion of said absorbent core member.

5. An integral disposable elasticized absorbent article as in claim 2 wherein each segment of said overlying barrier layer comprises an inner elasticized edge and wherein each pair of elastic edges cross near the leg opening to form a dual protection region.

6. An integral disposable elasticized absorbent article as in claim 4 wherein each segment of said overlying barrier layer comprises an inner elasticized edge and wherein each pair of elastic edges cross near the leg opening for form a dual protection region.

7. An integral disposable elasticized absorbent article comprising:

(a) an absorbent body having a front waist portion, a back waist portion, a crotch portion and a pair of spaced apart leg openings;

(b) an absorbent core member having a liquid pervious top layer facing the body of the wearer, a liquid impervious back layer substantially coextensive with said liquid pervious layer, and a liquid absorbent layer disposed between said top layer and said back layer;

(c) means for fastening said absorbent body to the body of the wearer, and

(d) elasticized barrier layer overlying portion of said core members, said barrier layer comprising a front left segment, a front right segment, a rear left segment and a rear right segment, each of said segments being secured to said absorbent body and defining a retaining enclosure between a portion of said absorbent core and its respective overlying barrier segment.

8. An integral disposable elasticized absorbent article comprising:
- (a) an absorbent body having a front waist portion, a back waist portion, a crotch portion and a pair of spaced apart leg openings;
 - (b) an absorbent core member comprising a liquid pervious top layer facing the body of the wearer, a liquid impervious back layer substantially coextensive with said top layer and an absorbent layer disposed between said top layer and said bottom layer;
 - (c) means for fastening said absorbent body to the body of the wearer, and
 - (d) an elasticized barrier layer overlying said absorbent core member, said barrier layer comprising a first segment and a second segment, said first segment having a generally arch-shaped configuration and second said segment having a generally inverse opposed arch-shape configuration, said first segment and said second segment having elasticized inner edges wherein said elasticized edges are secured to said absorbent core member at opposed side edges of said core member and wherein each of said arch-shaped segments defines a retaining enclosure between said arch-shaped segment and its underlying absorbent core portion.

9. An integral disposable elasticized absorbent article as in claim 8 wherein pairs of said elasticized edges cross each other at the leg openings thereby defining a region of double protection against leakage of body exudates.

10. An integral disposable elasticized absorbent article comprising:

- (a) an absorbent body having a front waist portion, a back waist portion, a crotch portion and a pair of spaced apart leg openings;
- (b) an absorbent core member;
- (c) means for fastening the absorbent article to the body of the wearer, and
- (d) an elasticized first barrier layer segment overlying said absorbent core member at one side of the longitudinal axis of said core member, and an elasticized second barrier layer segment overlying said absorbent core member at the opposite side of said first barrier layer segment, said first barrier layer segment having a generally concave-shaped elasticized edge, and said second barrier layer segment having a generally concave-shaped elasticized edge, wherein said elasticized edges together define a generally oval-shaped opening, and wherein said first barrier layer segment defines a first retaining enclosure between said first barrier layer segment and its underlying portion of said absorbent core member, and said second barrier layer

segment defines a retaining enclosure between said second barrier layer segment and its underlying portion of said absorbent core member.

11. An integral disposable absorbent article as in claim 10 wherein said elasticized edges cross each other at each leg opening region thereby defining regions of double protection against leakage of body exudates.

12. An integral disposable elasticized absorbent article comprising:

- (a) an absorbent body having a front waist portion, a back waist portion, a crotch portion and a pair of spaced apart leg openings;
- (b) means for fastening the absorbent body to the body of the wearer;
- (c) an absorbent core member; and
- (d) a first barrier layer segment overlying said absorbent core member at one side of the longitudinal axis of said core member, and a second barrier layer segment overlying said absorbent core member at the opposite side of said first barrier layer segment, said first barrier layer segment having a generally concave shaped elasticized edge, and said second barrier layer segment having a generally concave-shaped elasticized edge, wherein said elasticized edges together define a generally oval shaped opening, and wherein said first barrier layer segment define a first retaining enclosure between said first barrier layer segment and its underlying portion

of said absorbent core member, and said second barrier layer segment defines a second retaining enclosure between said second barrier layer segment and its underlying portion of said absorbent core member.

13. An integral elasticized absorbent article comprising:

(a) an absorbent body having a front waist portion, a back waist portion, a crotch portion and a pair of spaced apart leg openings;

(b) an absorbent core member;

(c) means for fastening said absorbent body to the body of the wearer;

and

(d) a first barrier layer segment to one side of the longitudinal axis of said body said barrier layer segment having an inner elasticized edge extending diagonally from a point at the lateral side of said body to a point on the longitudinal side of said body, a second barrier layer segment on the opposite side relative to said first barrier layer segment, and having an inner elasticized edge extending from a point at the lateral side of said body to a point on the opposing longitudinal side of said body, wherein said first barrier layer segment and said second barrier layer segment each form a retaining enclosure with its underlying portion of said absorbent core.

14. An integral elasticized absorbent article comprising:

- (a) an absorbent body having a front waist portion, a back waist portion, a crotch portion and a pair of spaced apart leg openings;
 - (b) an absorbent core member;
 - (c) means for fastening said absorbent body to the body of the wearer;
- and

(d) a unitary barrier layer secured to said body and having generally arch-shaped elasticized inner edge having two ends, a first end secured to said absorbent body at one side thereof and second end secured to said body at the opposite side thereof such that said unitary barrier layer defines a retaining enclosure between said barrier layer and said absorbent core member.

15. An integral disposable elasticized absorbent article comprising:

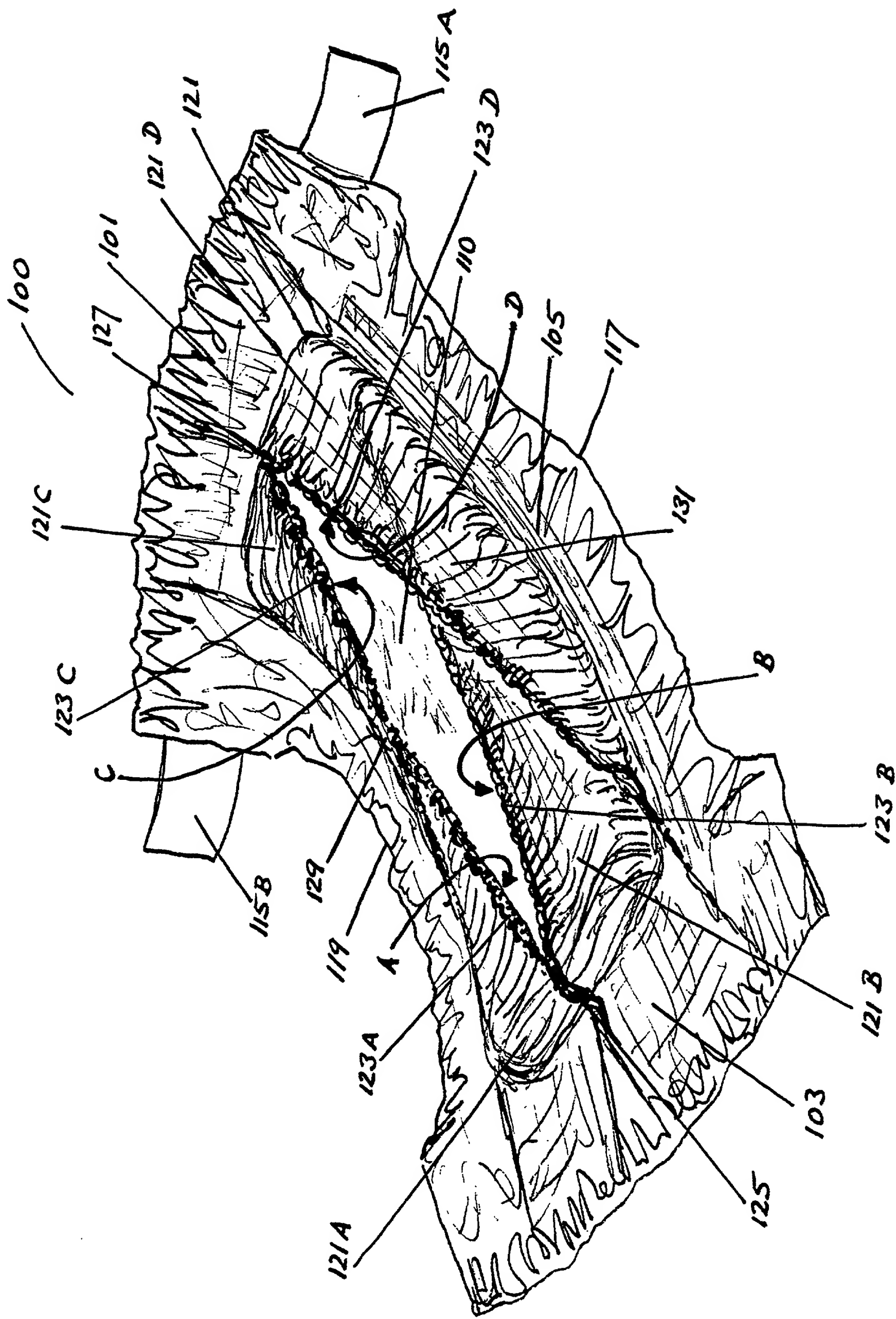
- (a) an absorbent body having a front waist portion, a back waist portion, a crotch portion and a pair of spaced apart leg openings;
- (b) means for fastening the absorbent body to the body of the wearer;
- (c) an absorbent core member; and
- (d) a first barrier layer segment overlying said absorbent core member on one side of the longitudinal axis of said body and a second barrier layer segment overlying said absorbent core member on the opposed side of said first barrier layer

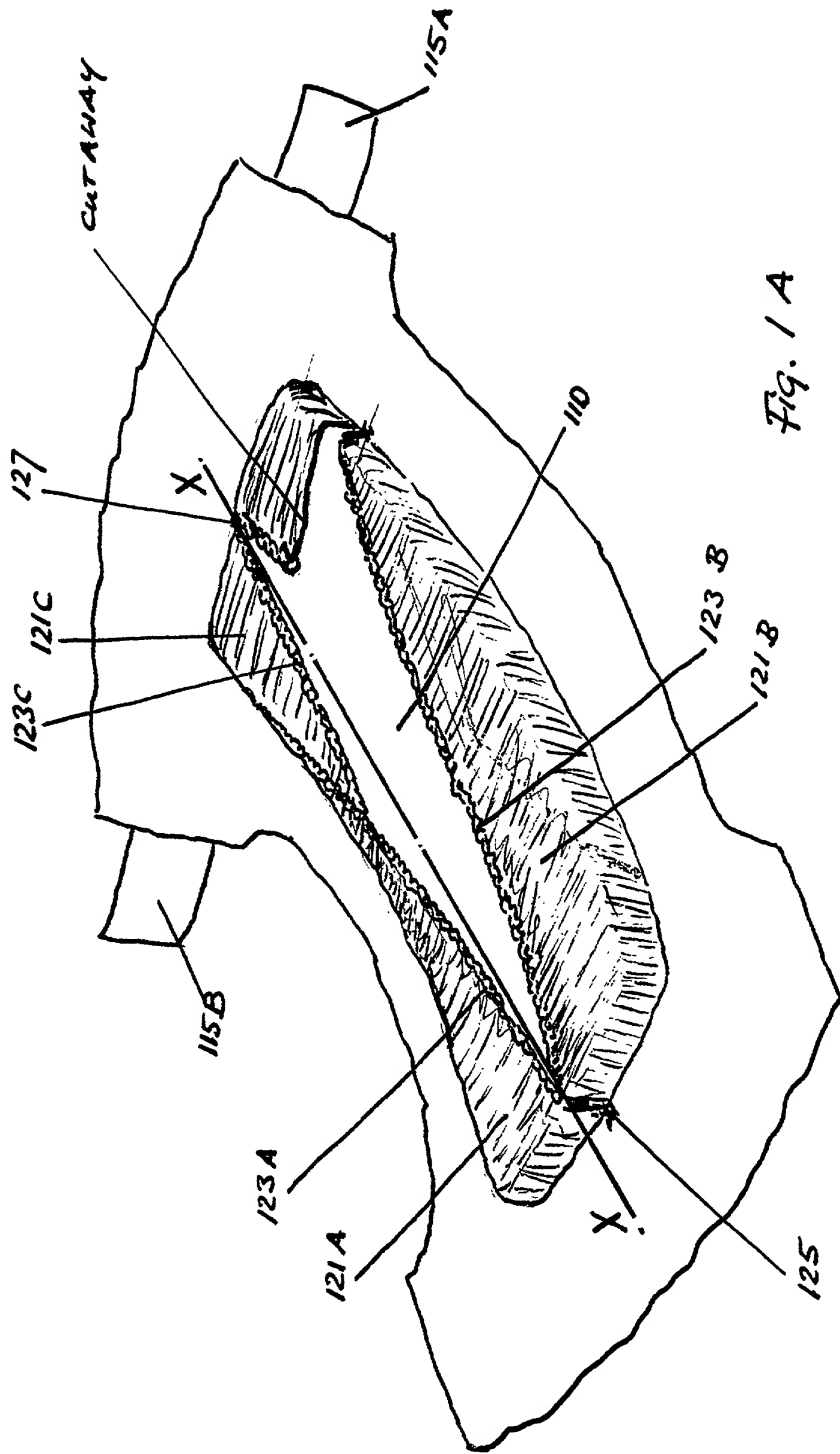
segment said first barrier layer segment having a generally concave-shaped inner elasticized edge and said second barrier layer segment having an opposed generally concave-shaped elasticized edge, wherein said elasticized edges define a generally oval-shaped absorbent region, and wherein each of said first and second barrier layer segments define a retaining enclosure with its respective underlying portion of said absorbent core member.

16. An integral disposable elasticized absorbent article as in claim 15 wherein said barrier layer segments span substantially the length of said absorbent core member.

ABSTRACT

An integral disposable elasticized absorbent article has a front waist portion, a back waist portion, a crotch portion, a pair of spaced apart leg openings, an absorbent core member, and means for tightly fitting the absorbent body to the body of the wearer. The absorbent article has a barrier layer which comprises one or more segments overlying portions of the absorbent core member, and defining one or more retaining enclosures between the barrier layer segments and the underlying portion of the absorbent core member.





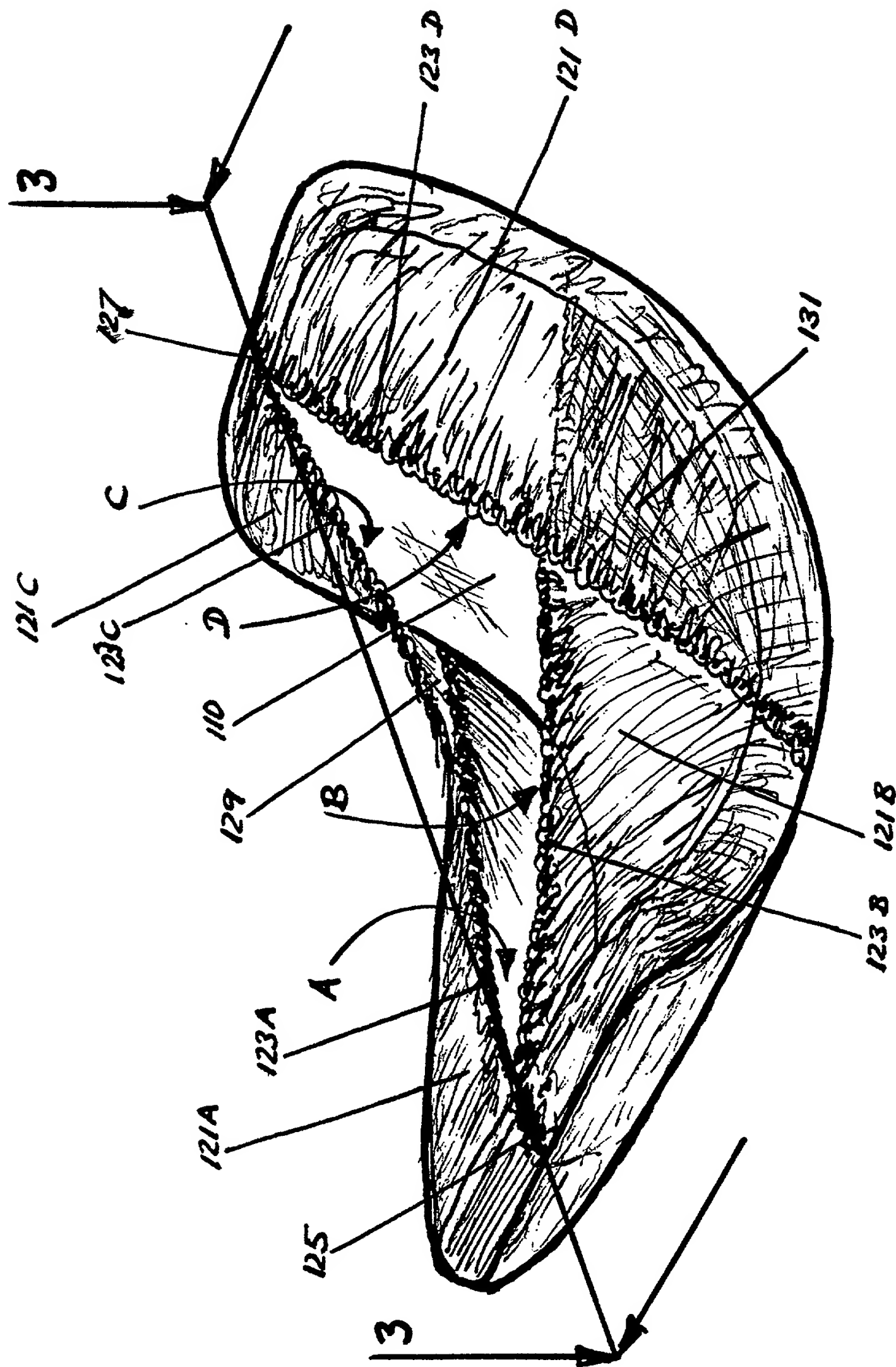


Fig 2

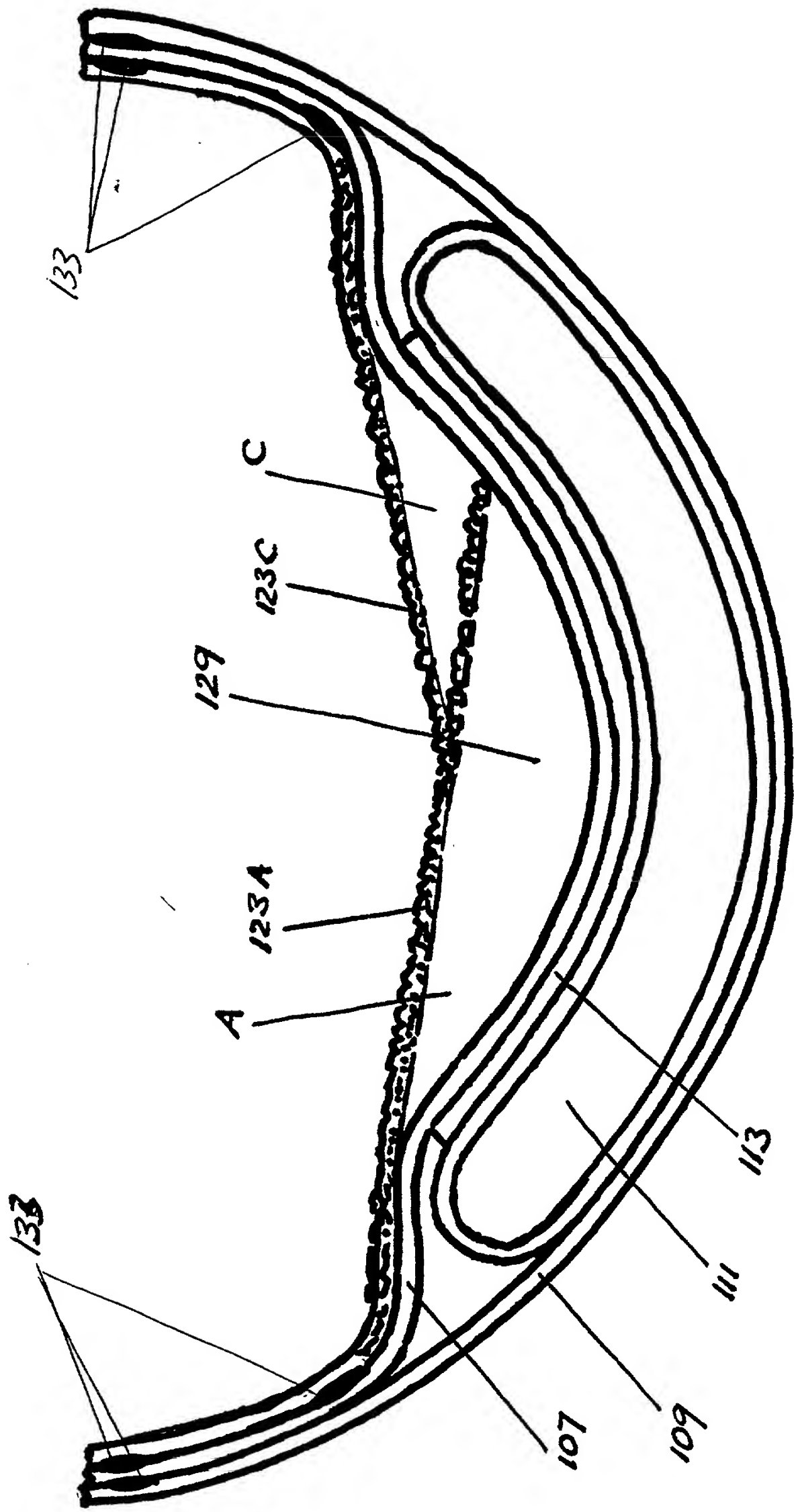


FIG 3

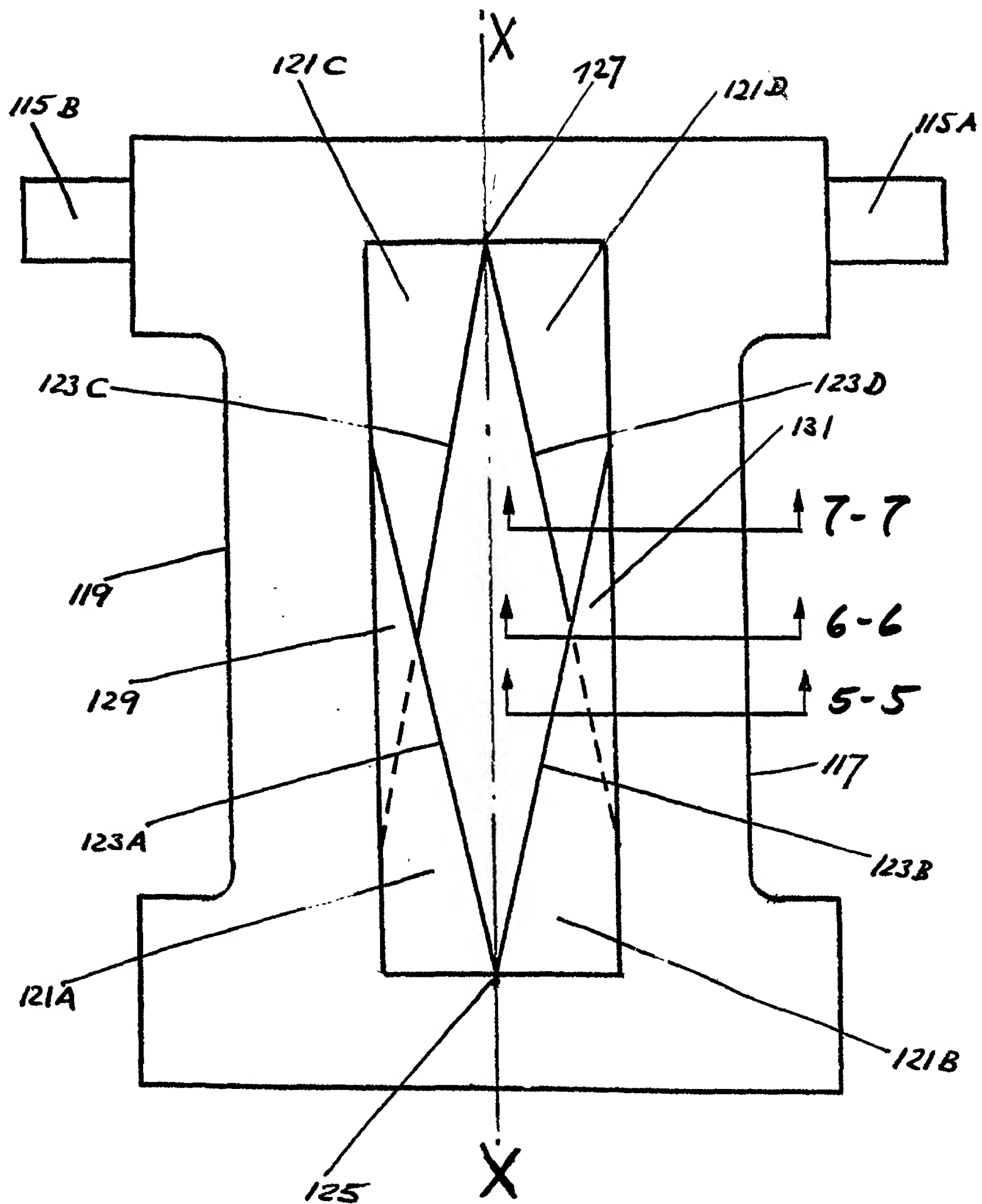
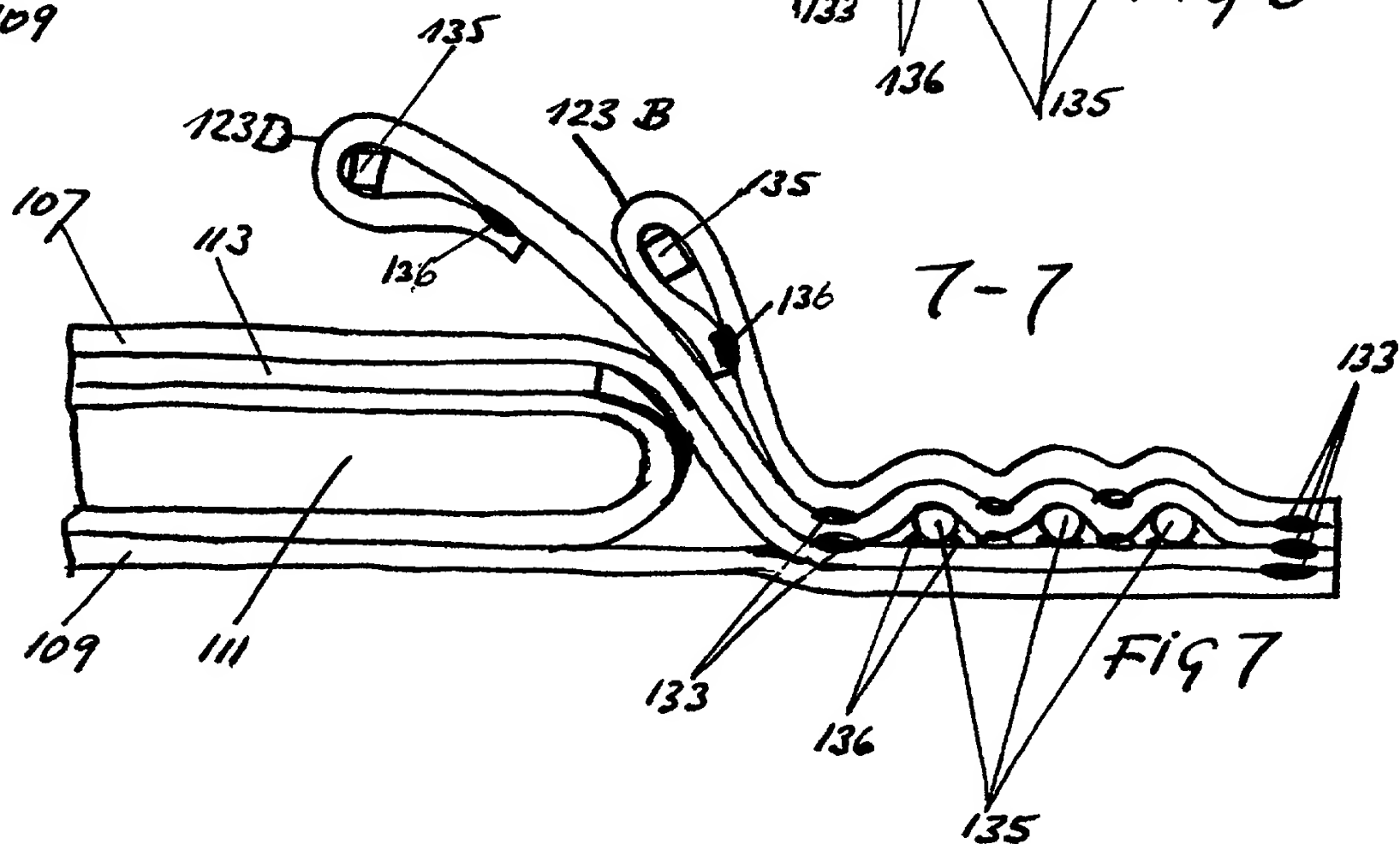
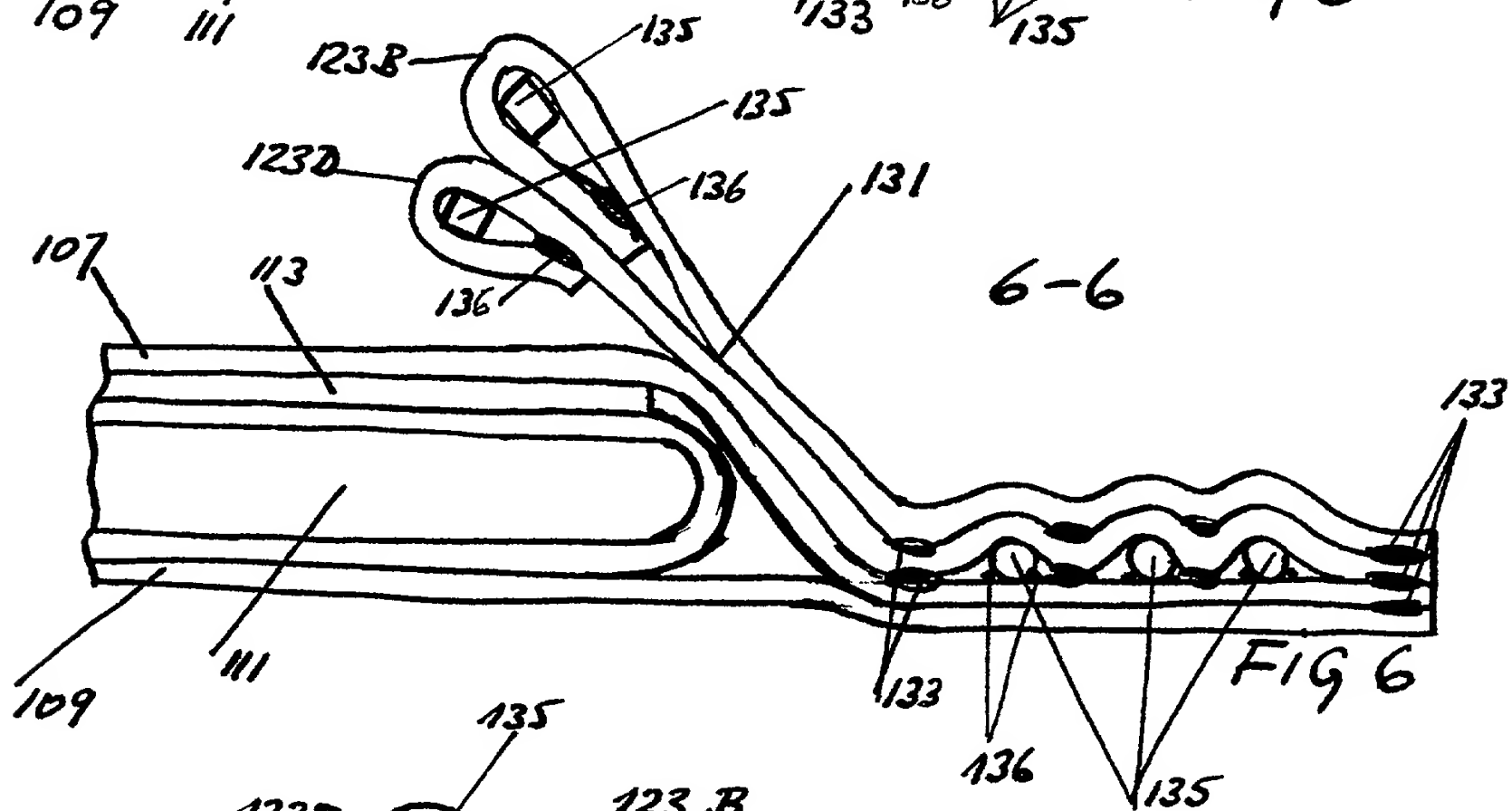
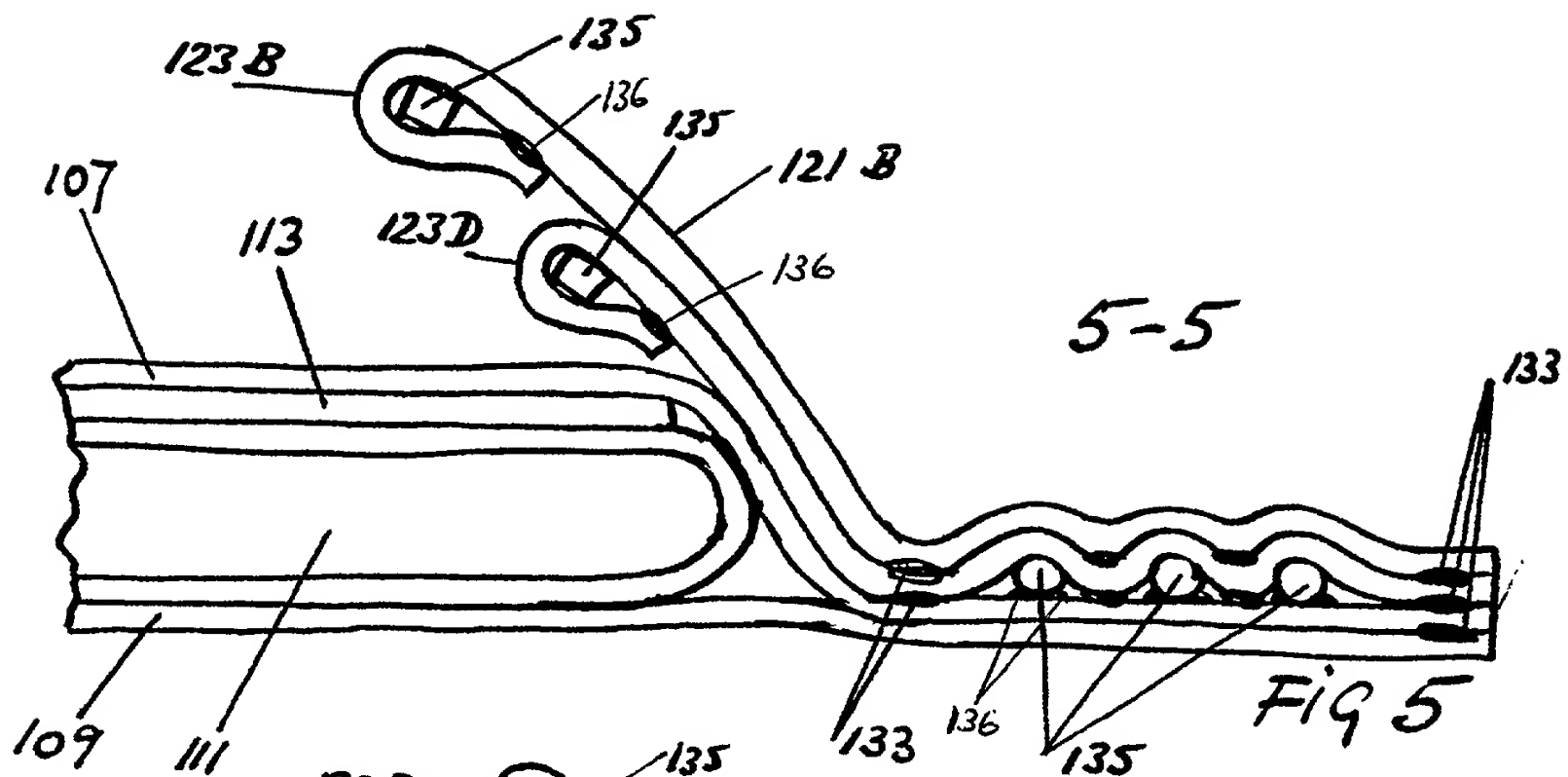


Fig 4



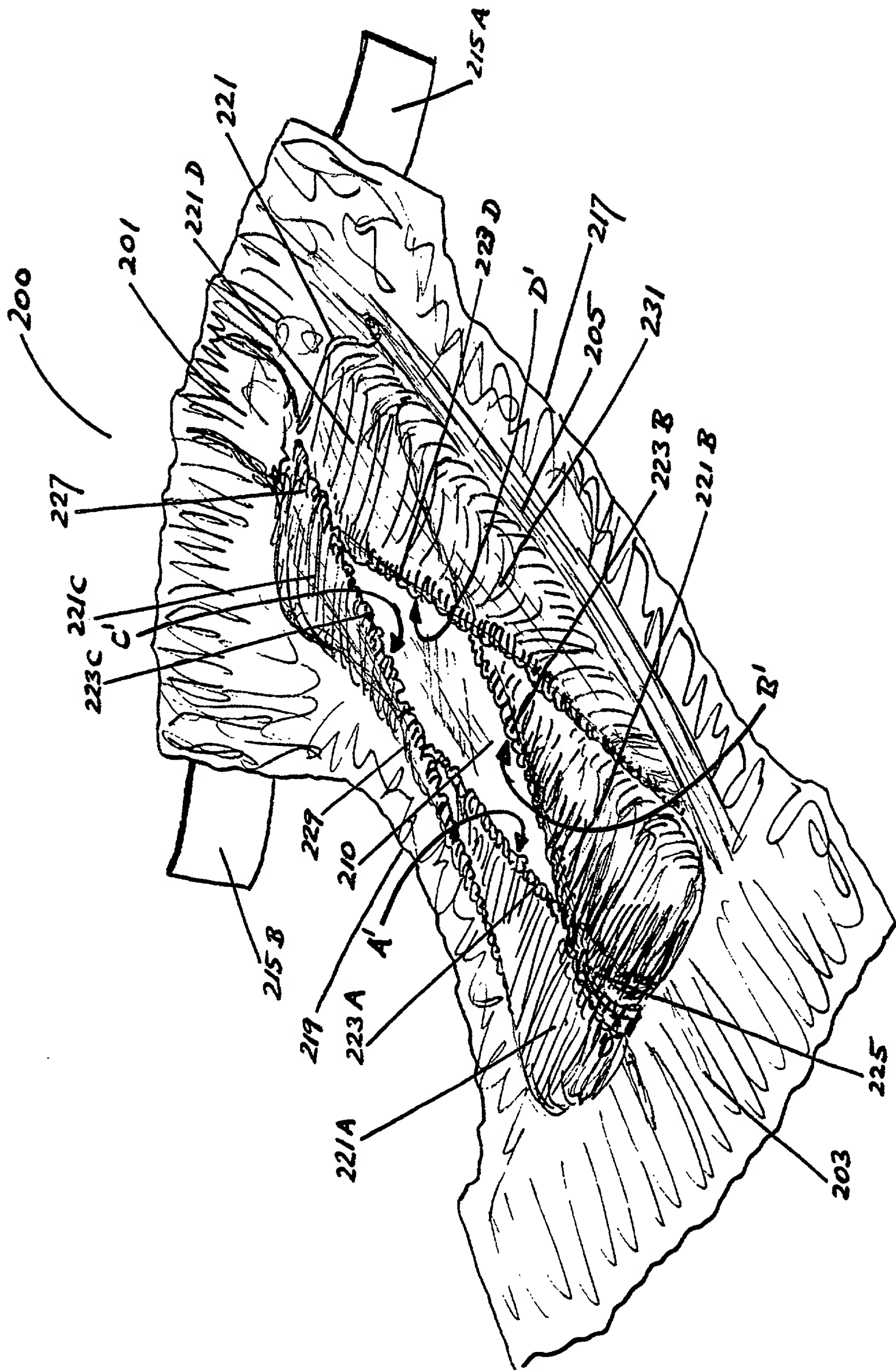
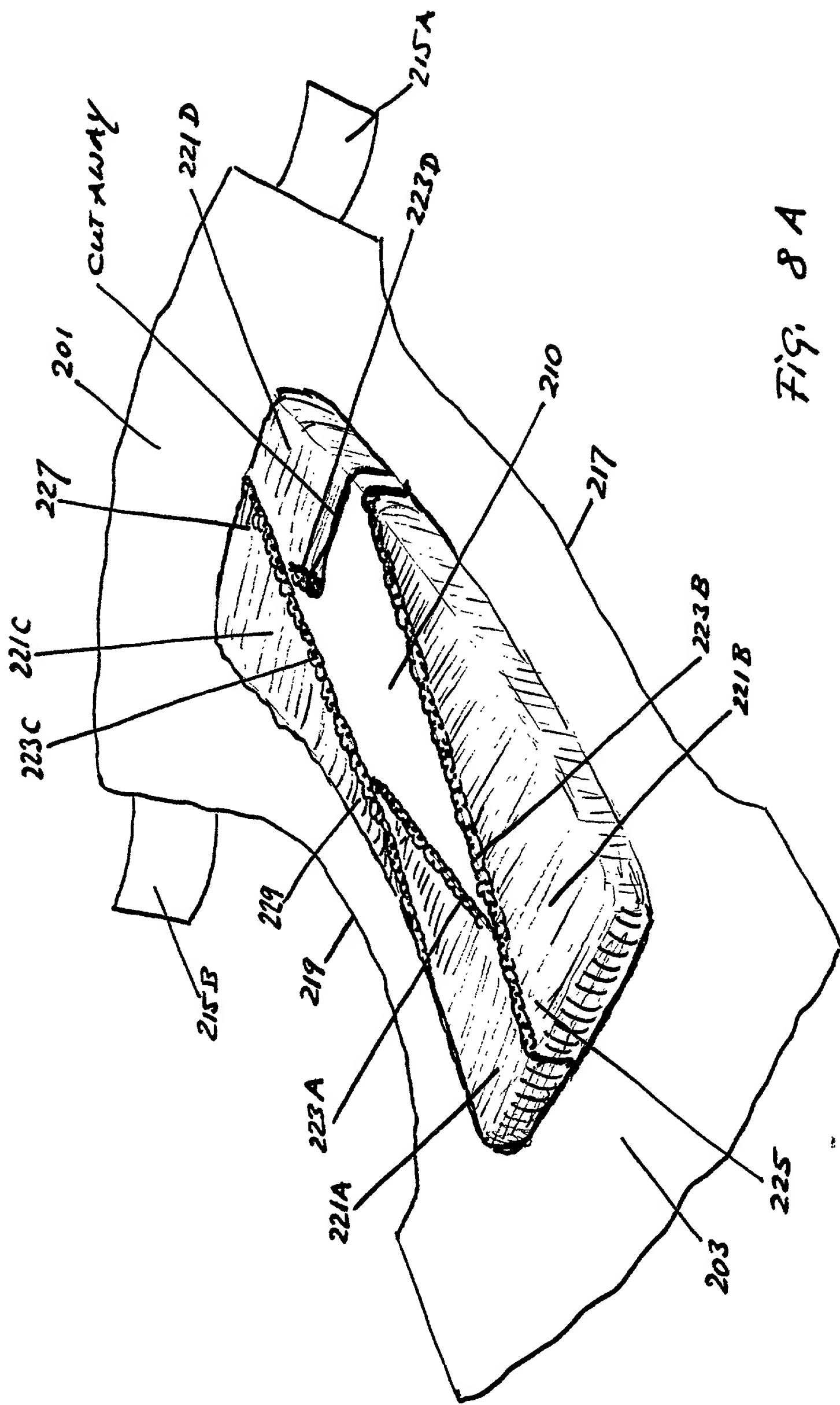


Fig 8



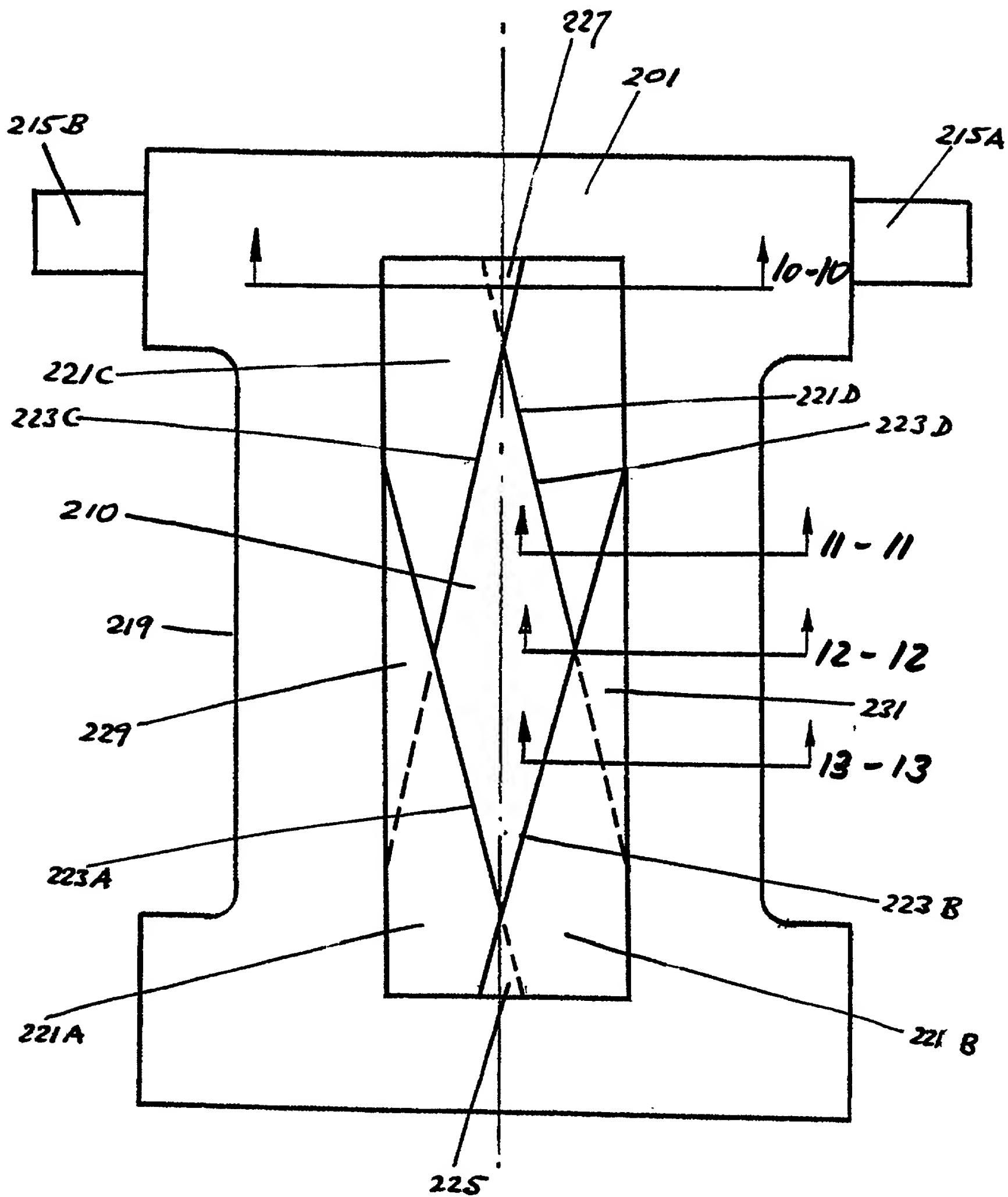
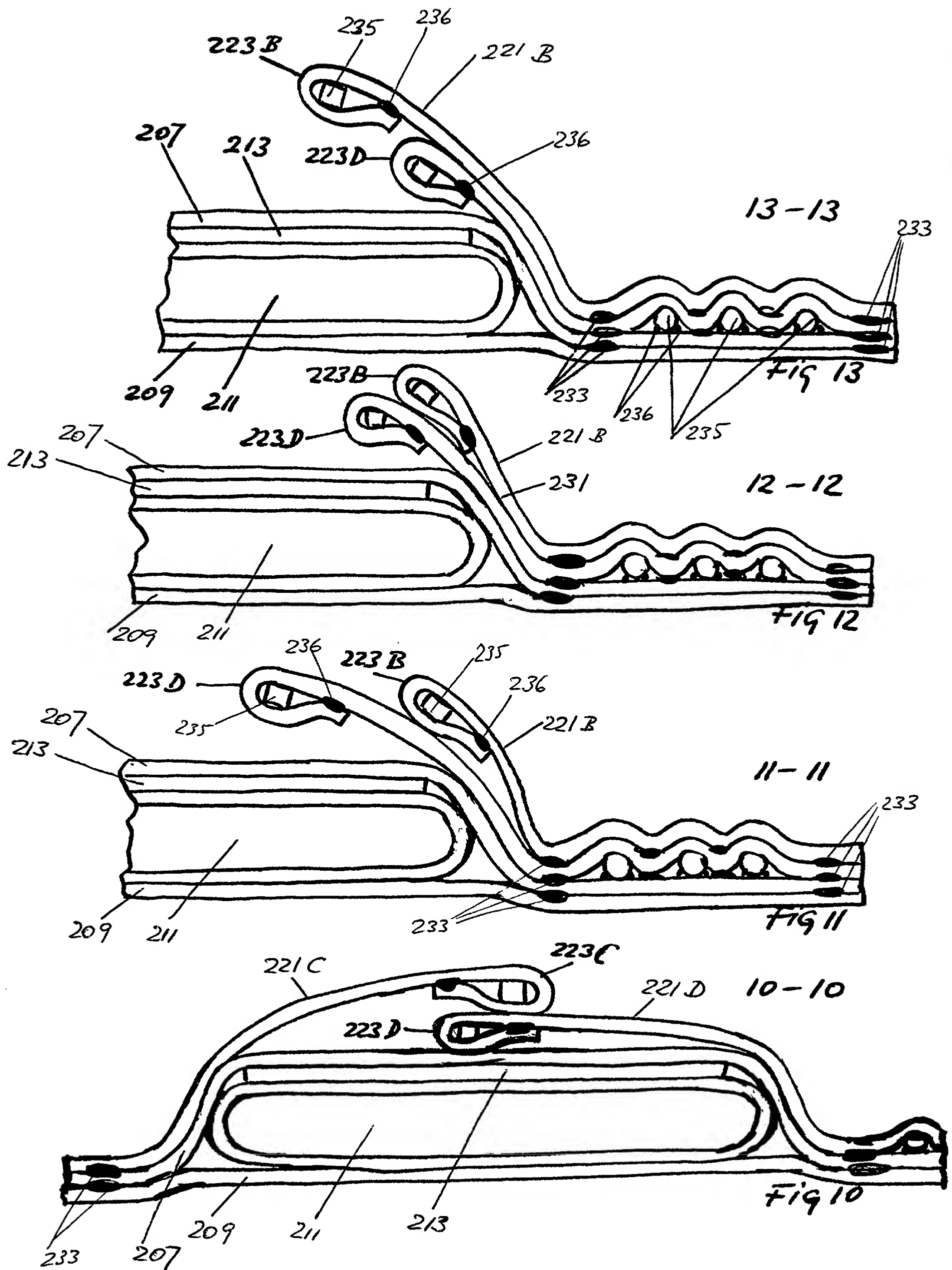


Fig 9



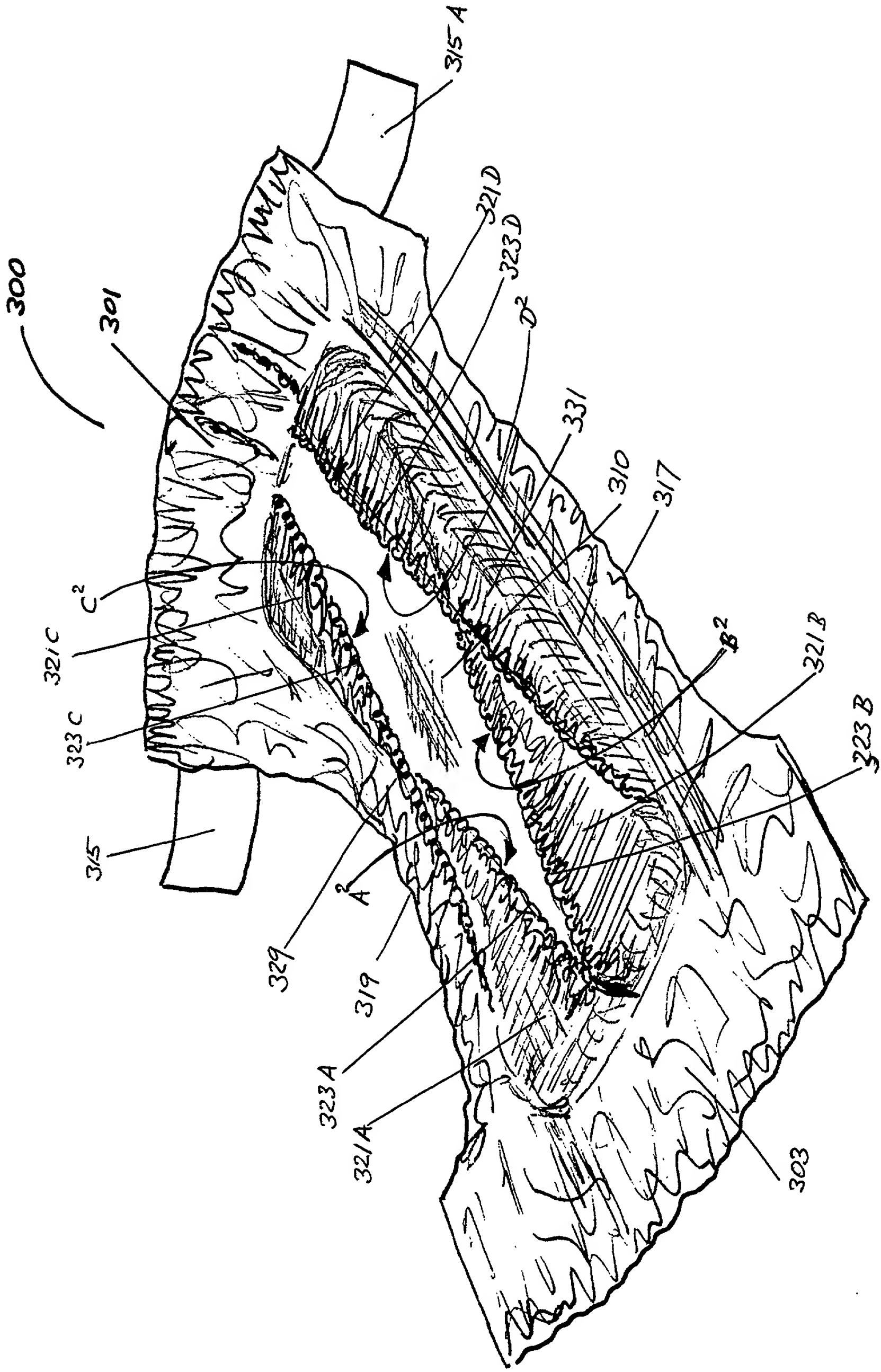


Fig 14

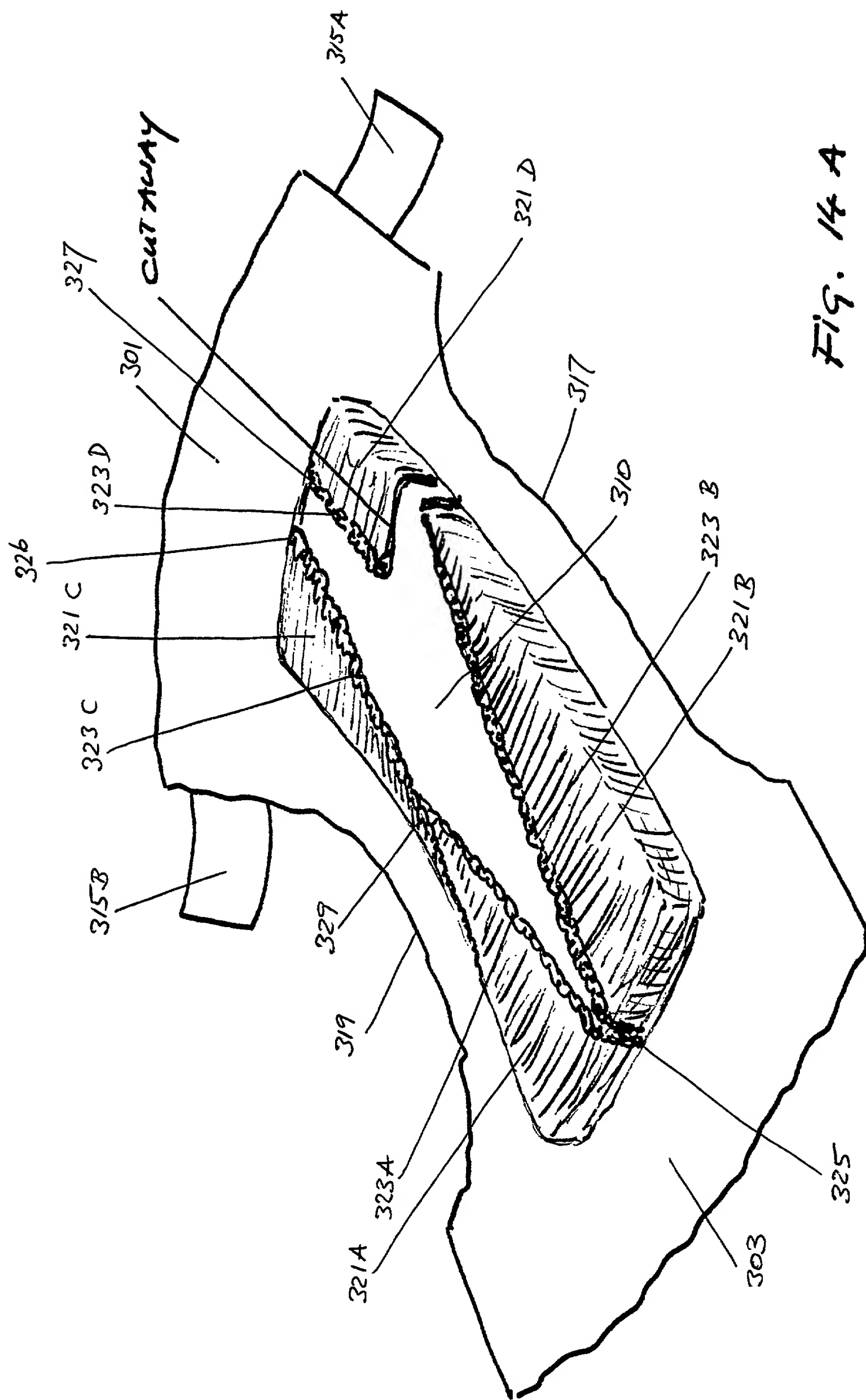


Fig. 14A

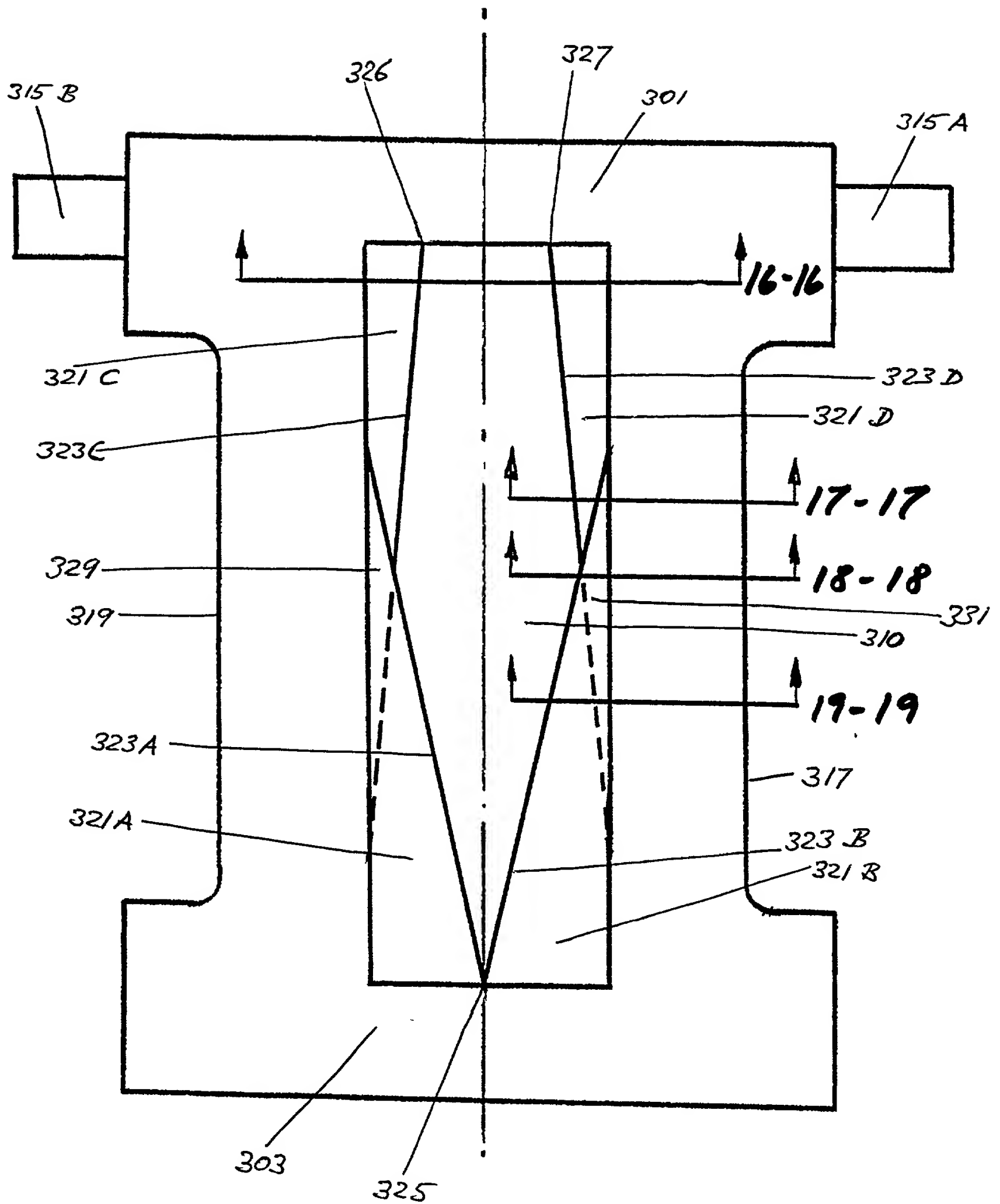
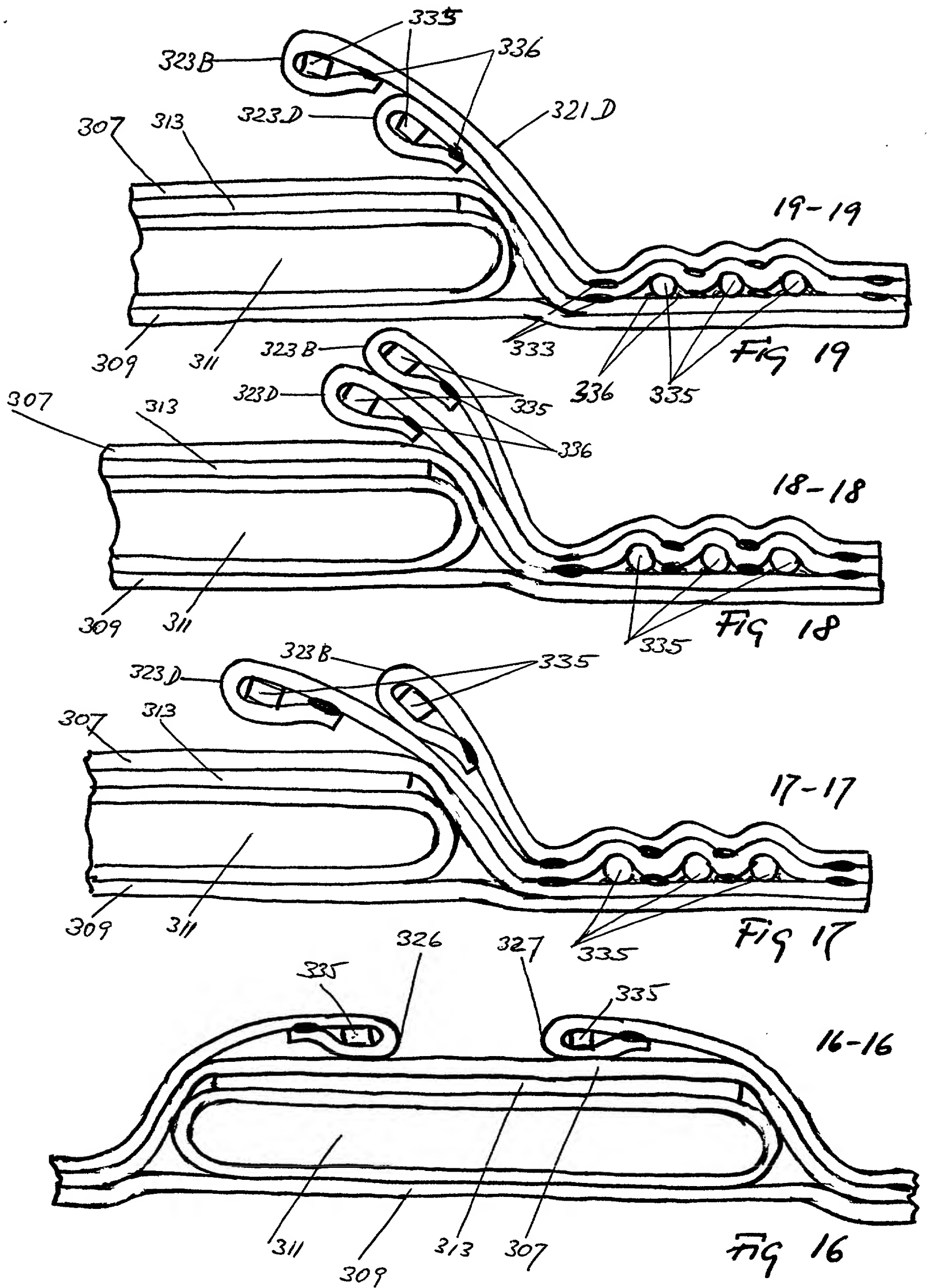


Fig 15



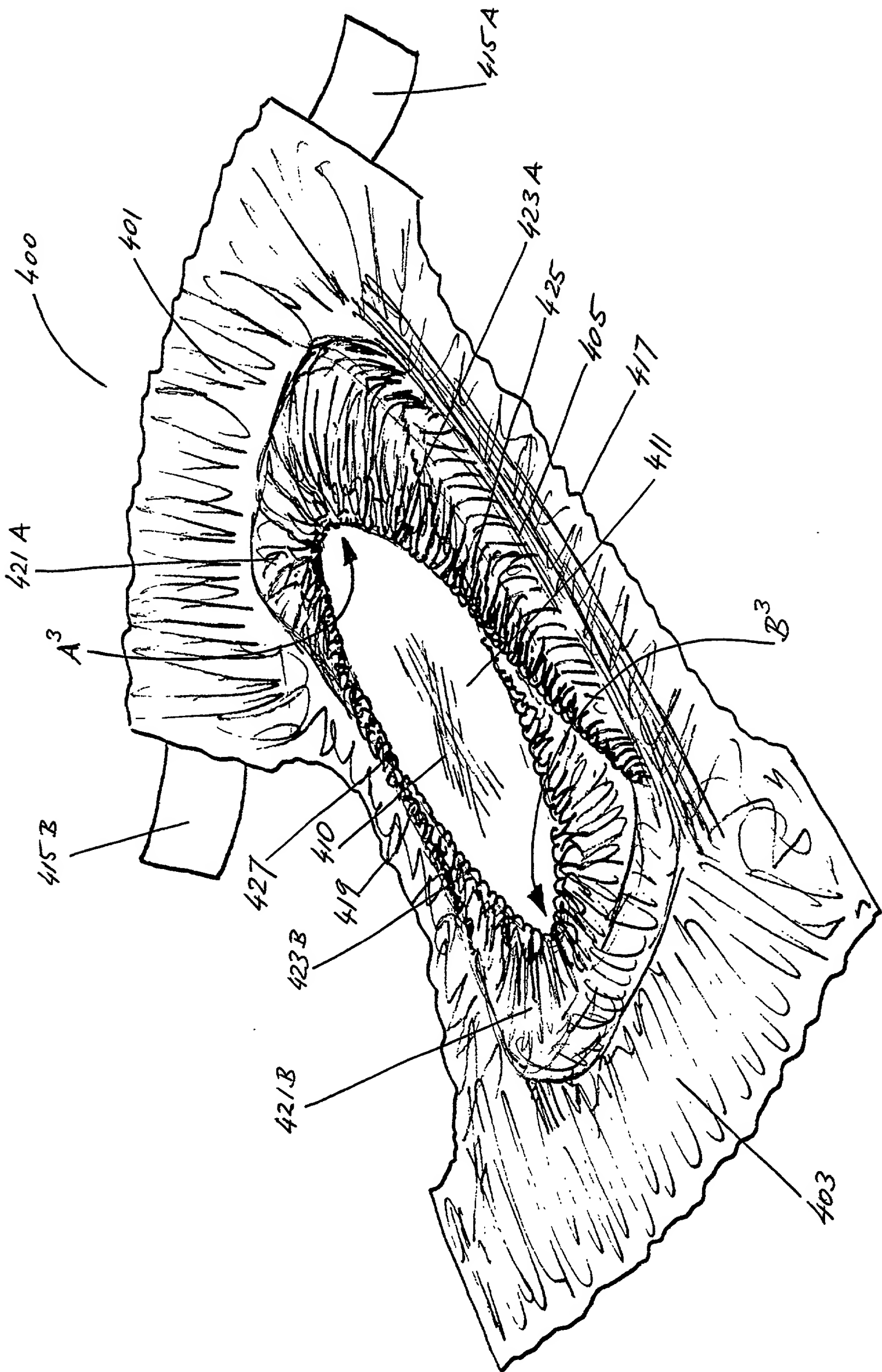


Fig 20

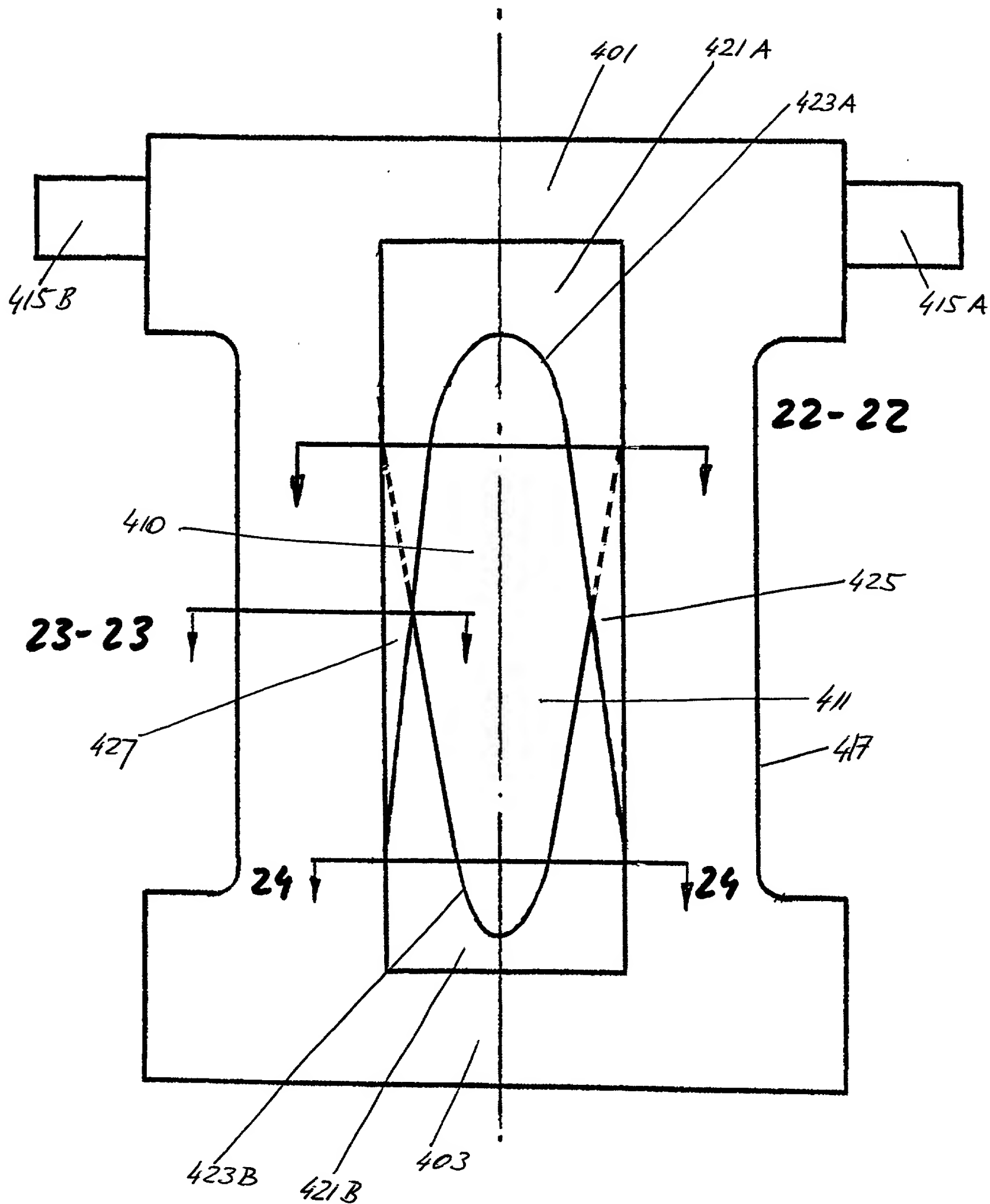
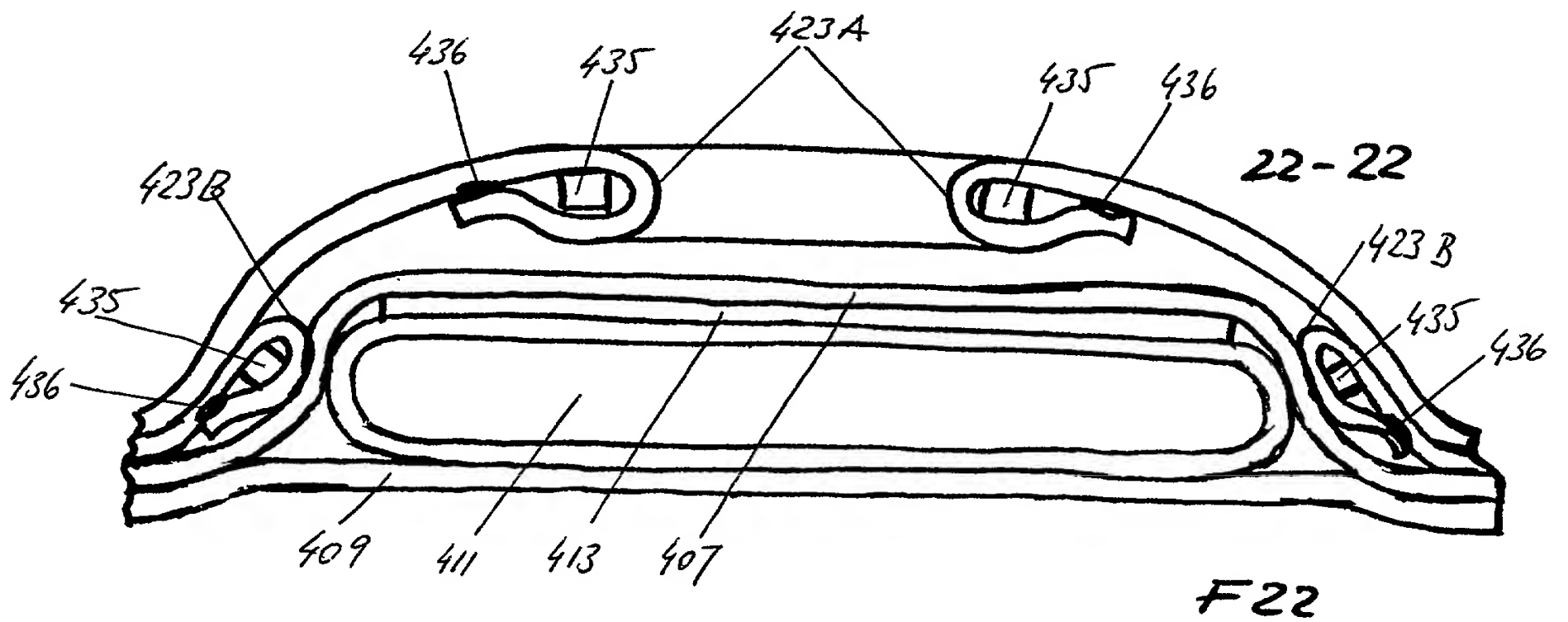
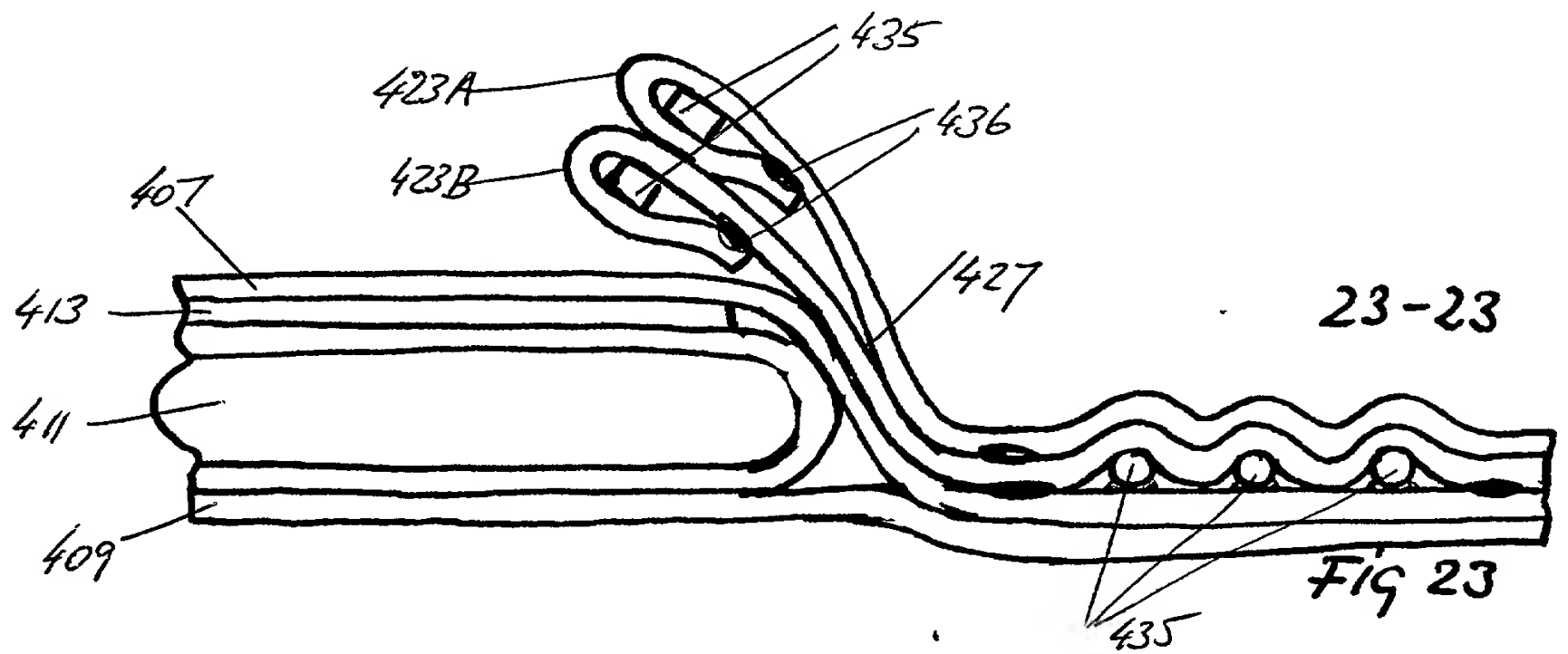
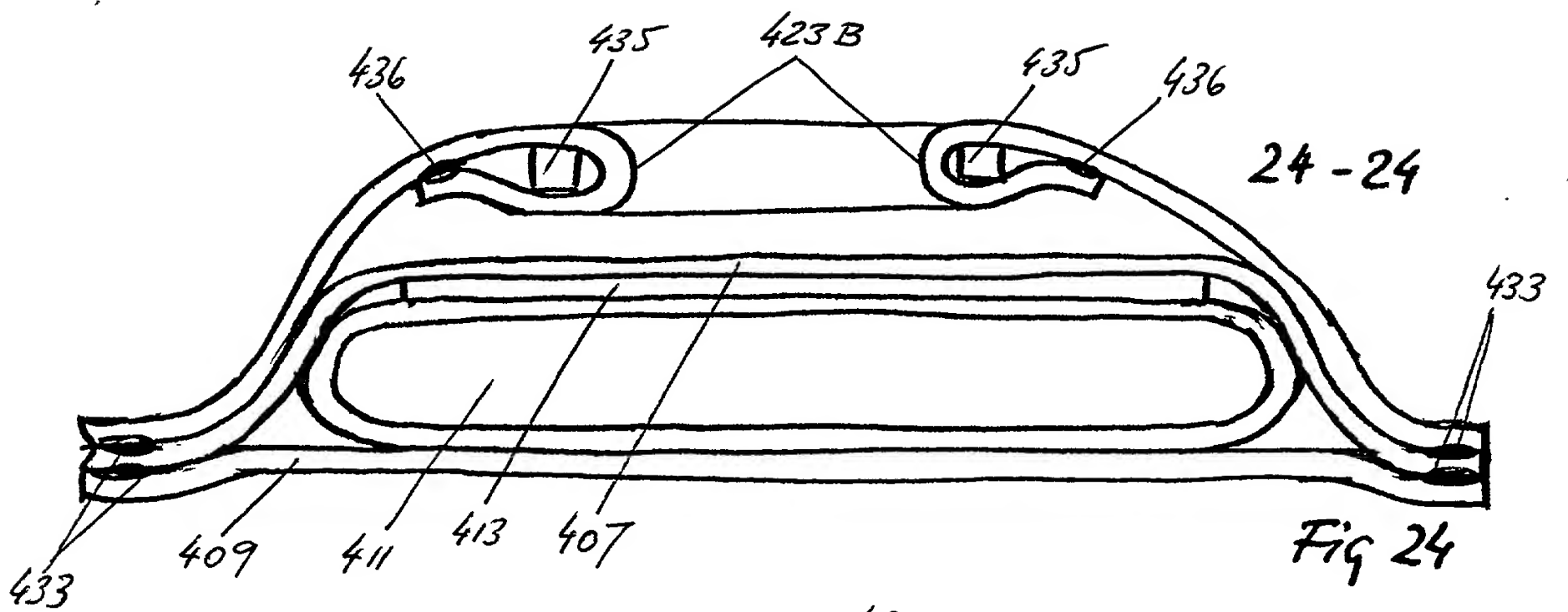


FIG 21



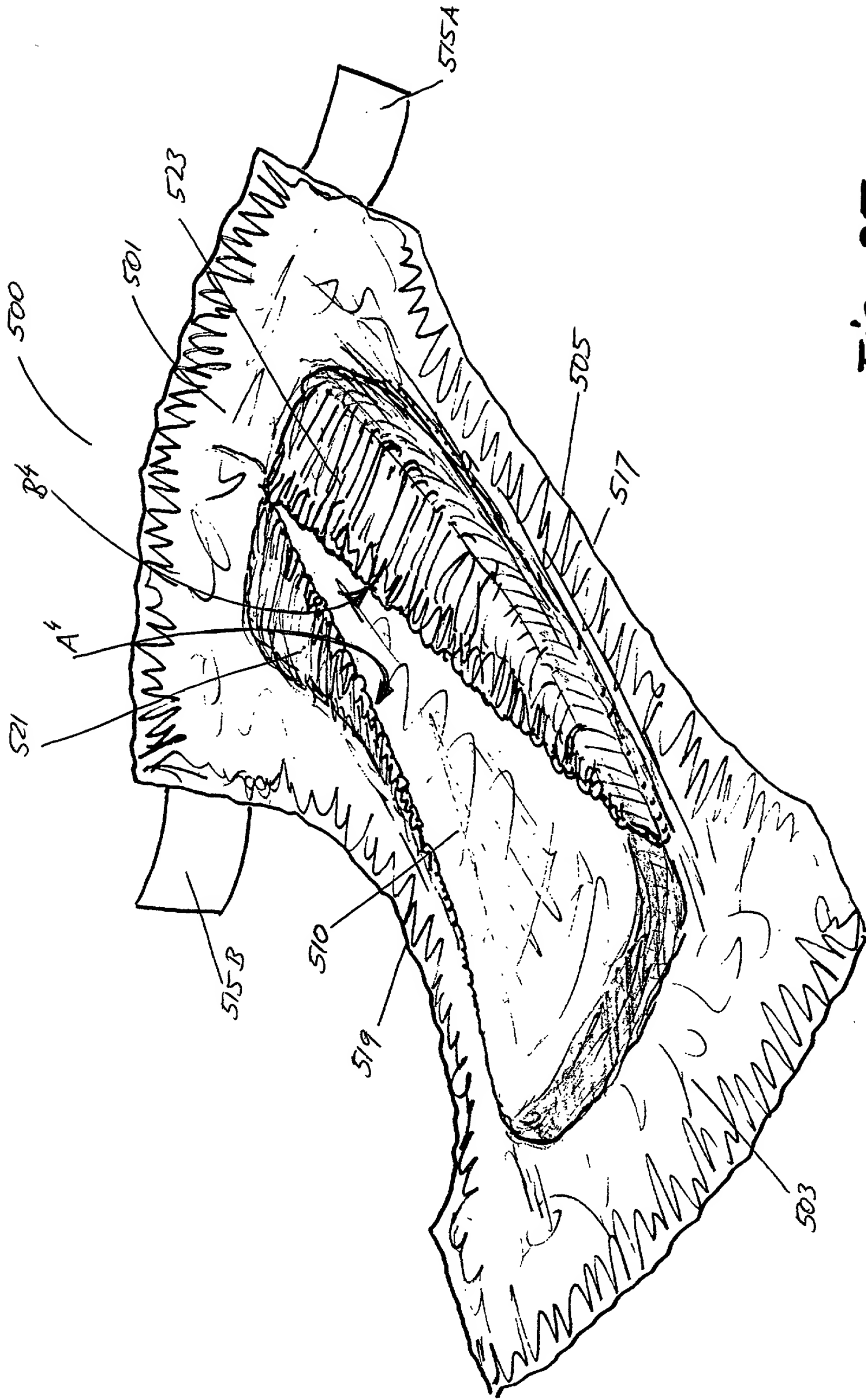


Fig 25

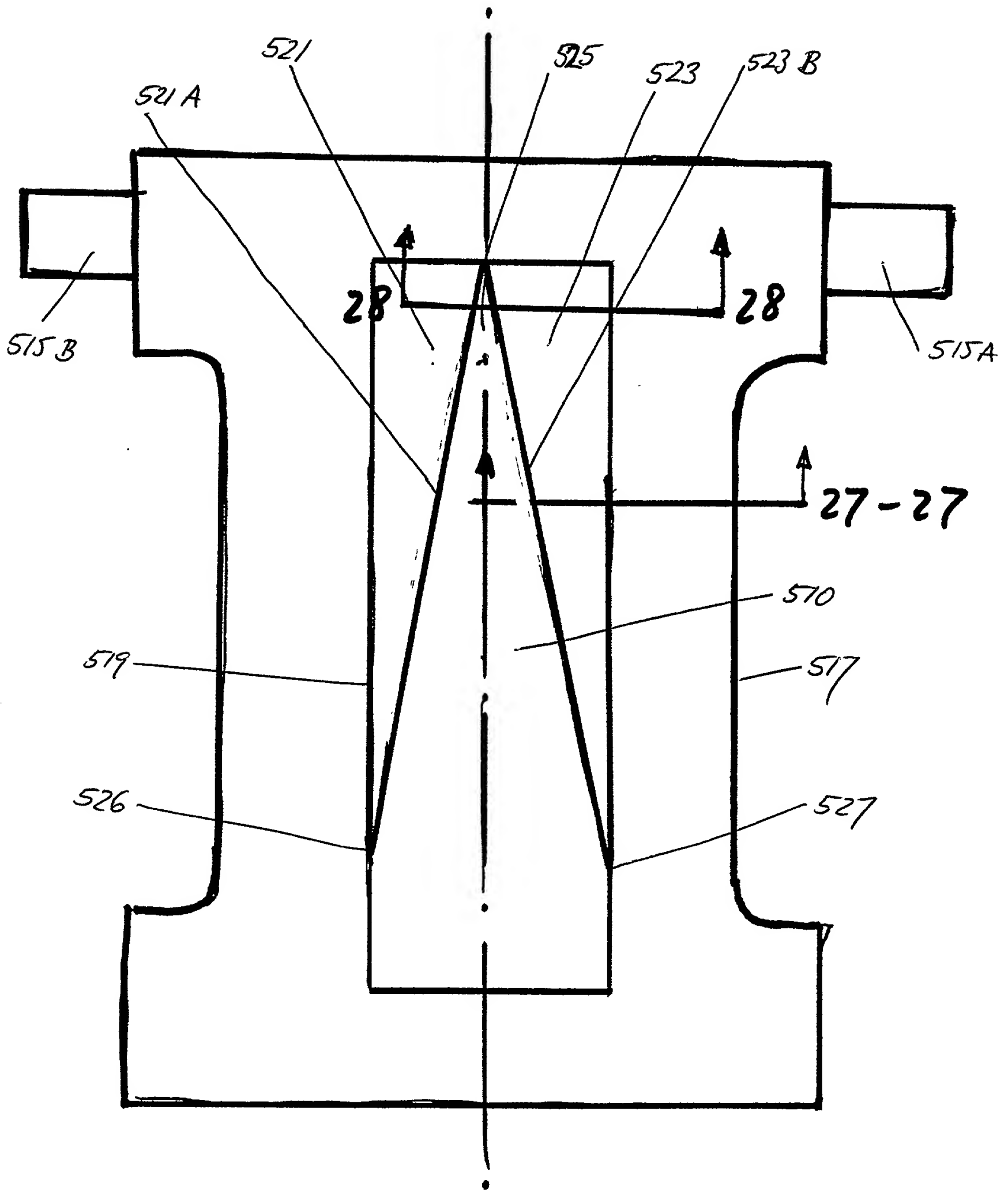
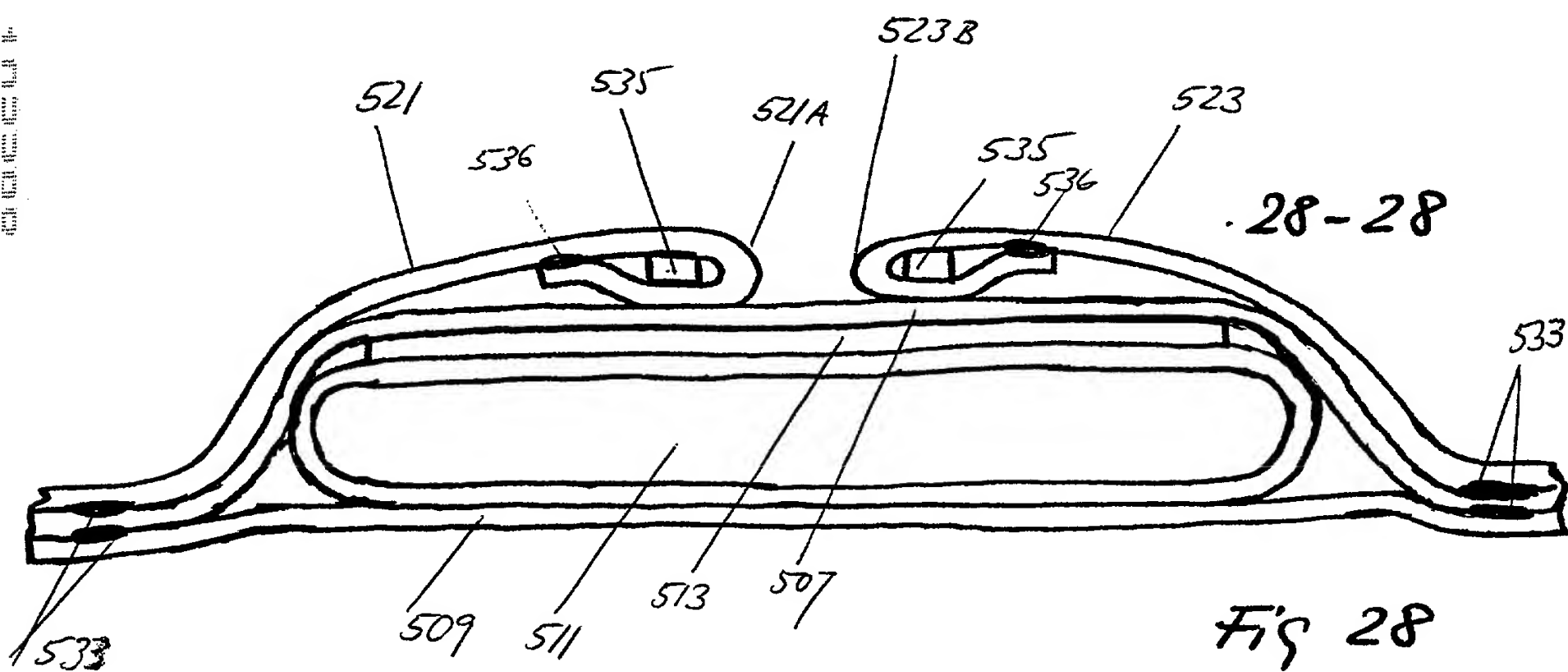
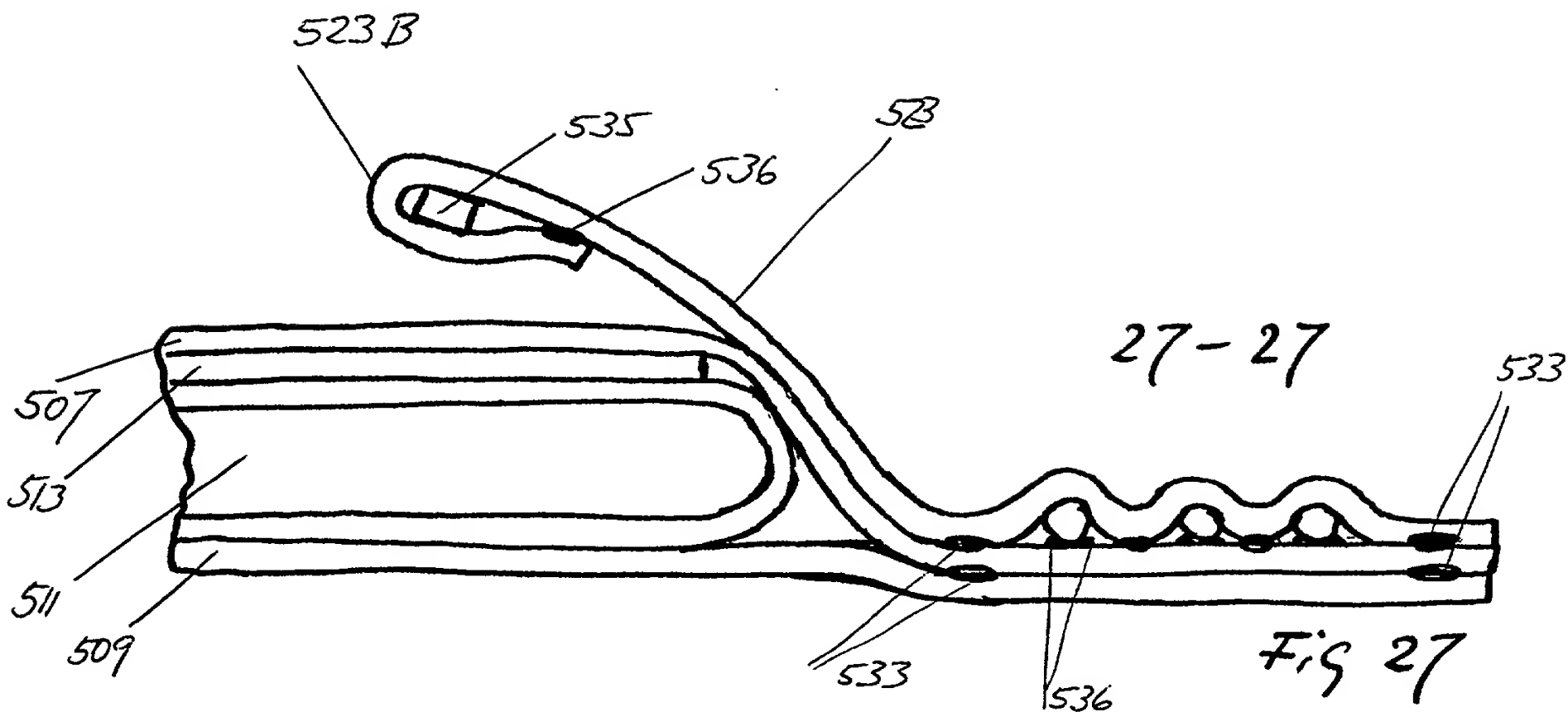
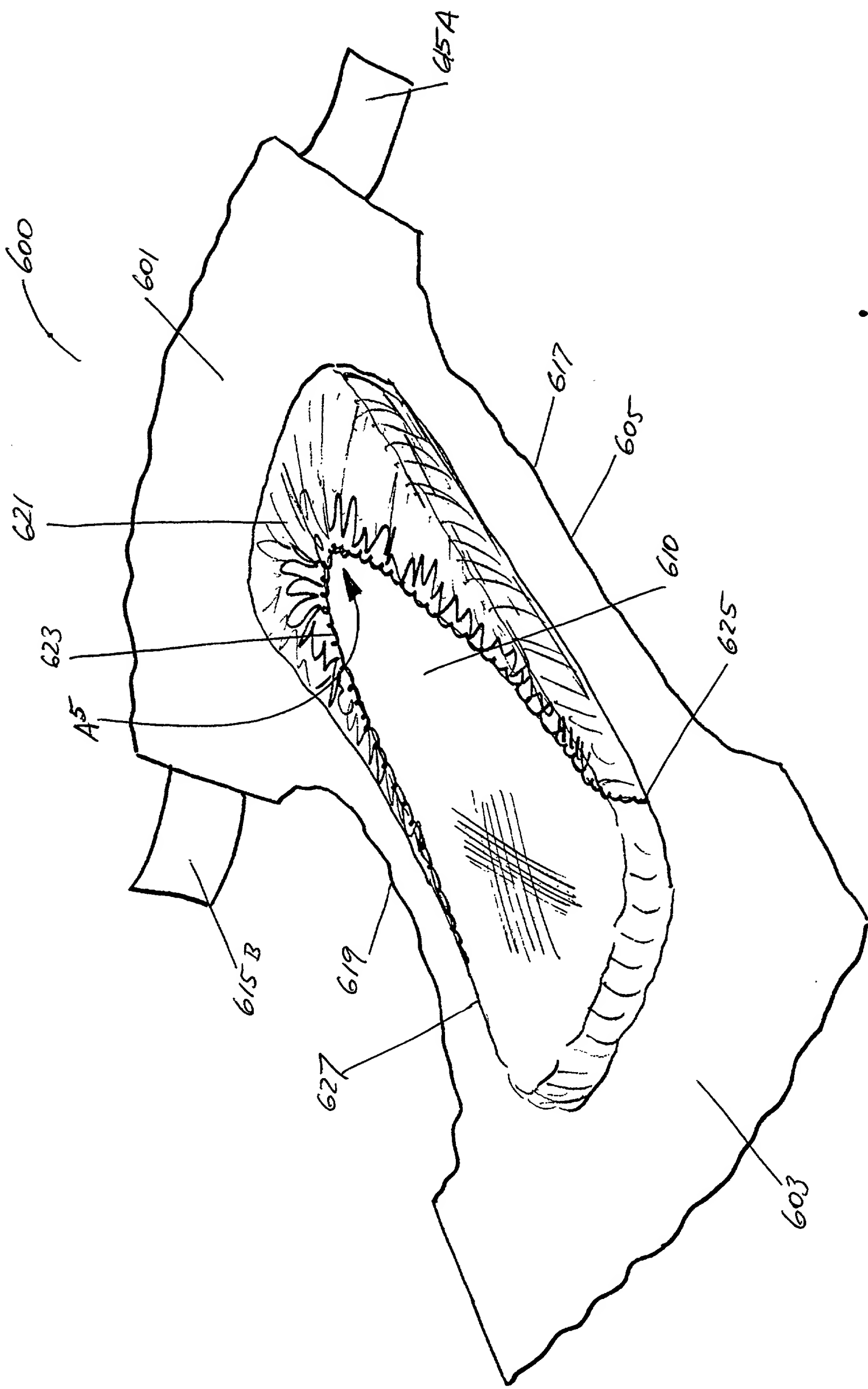


Fig 26





7/9 29

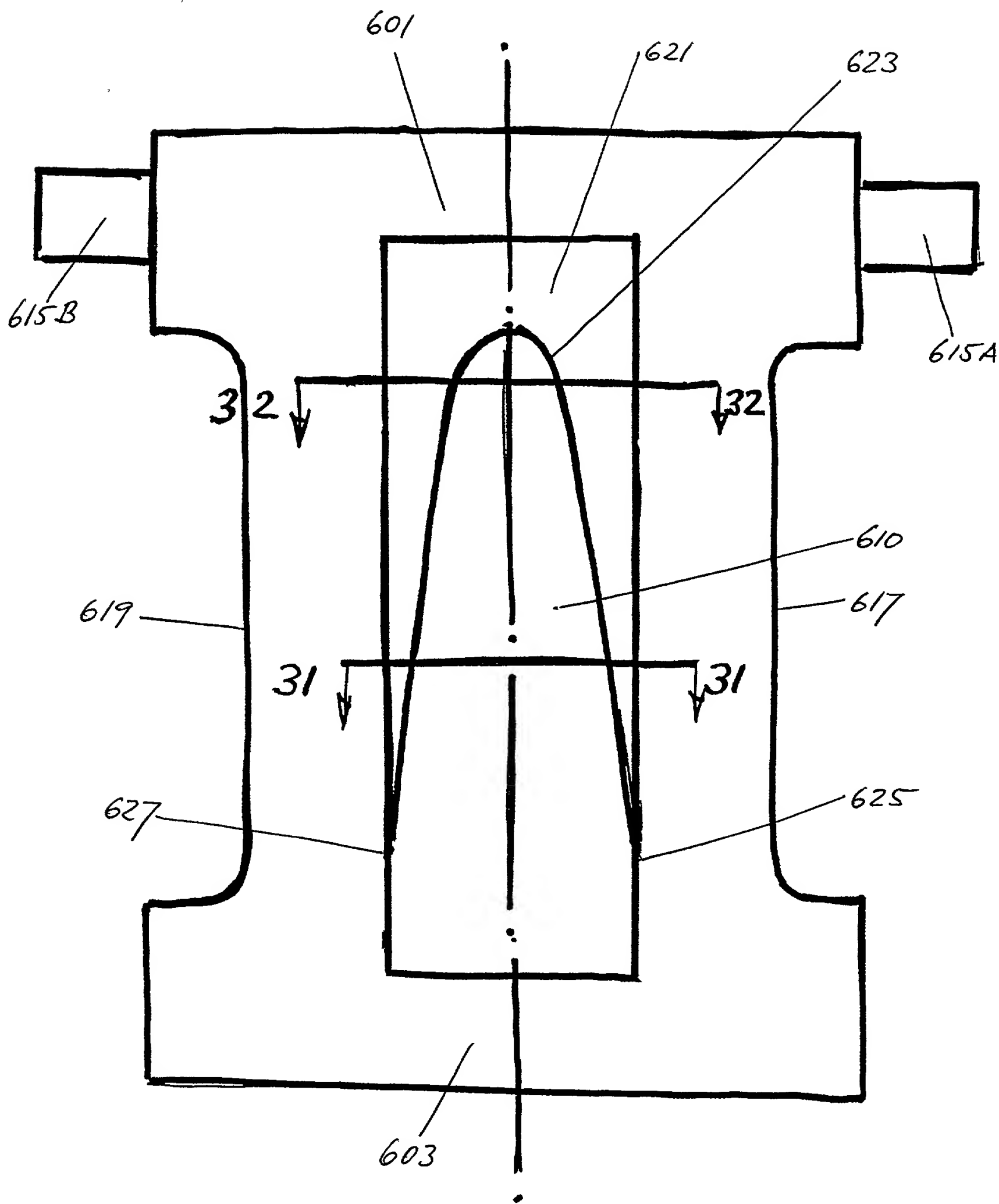
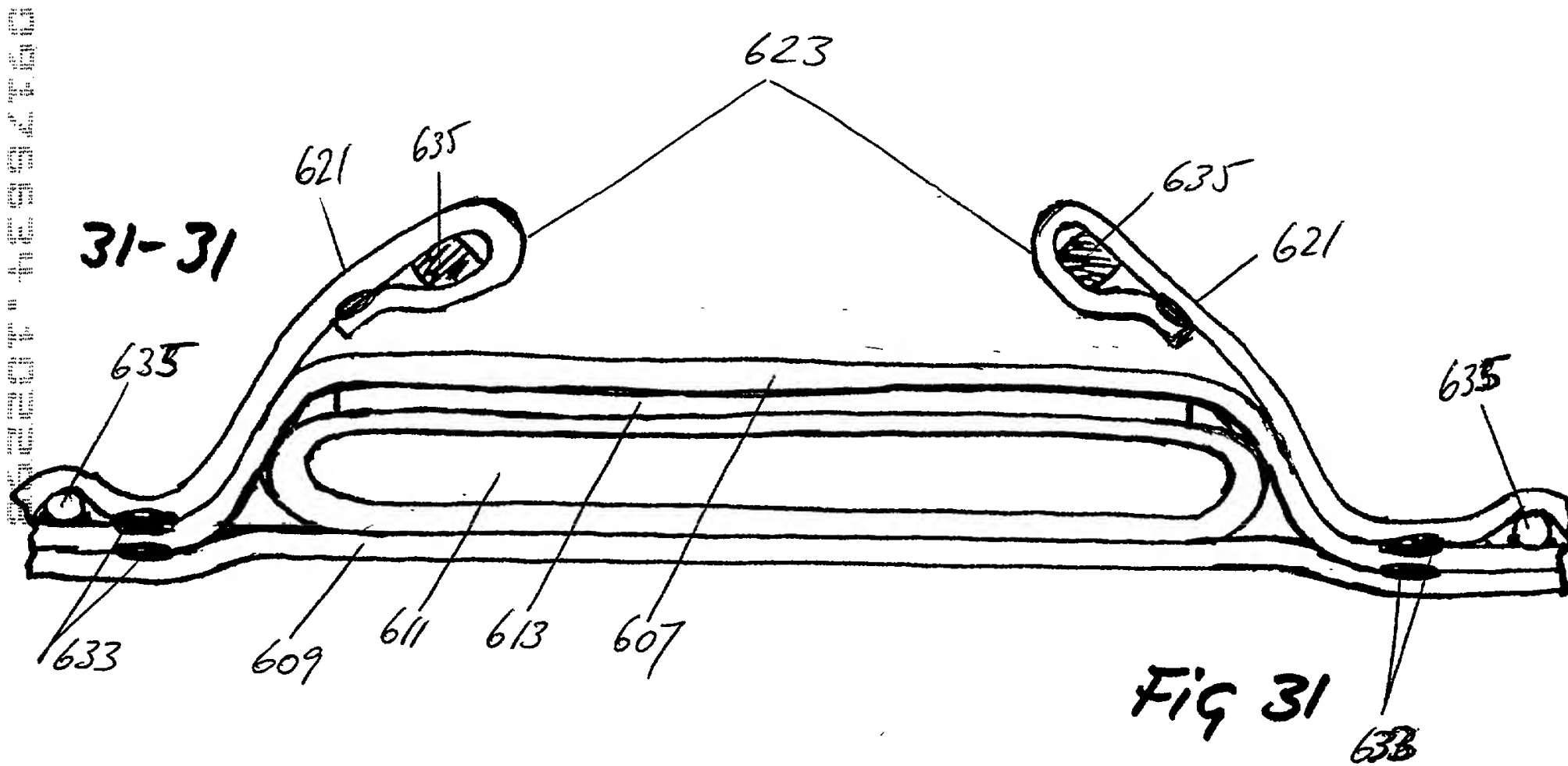
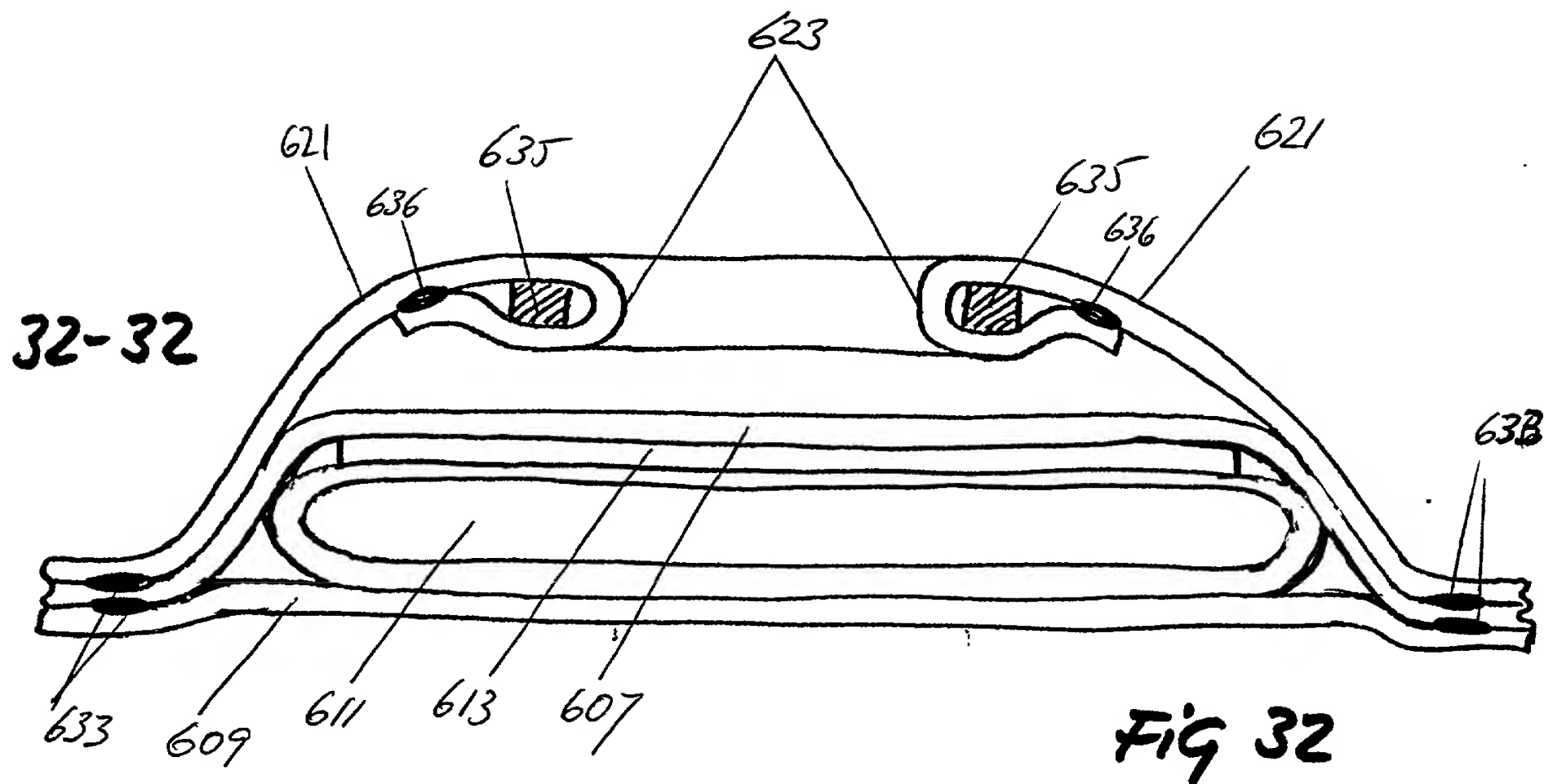
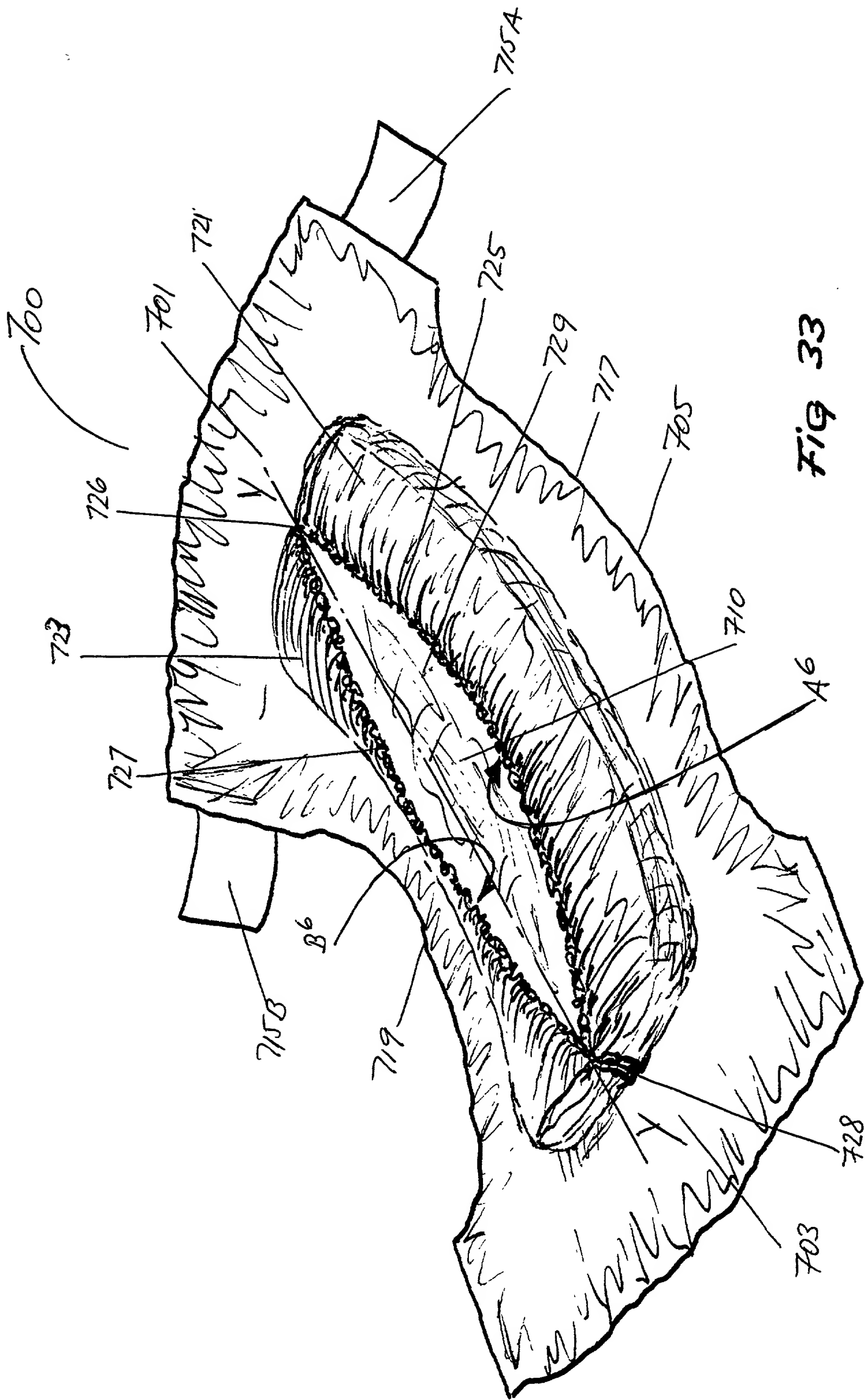


Fig 30





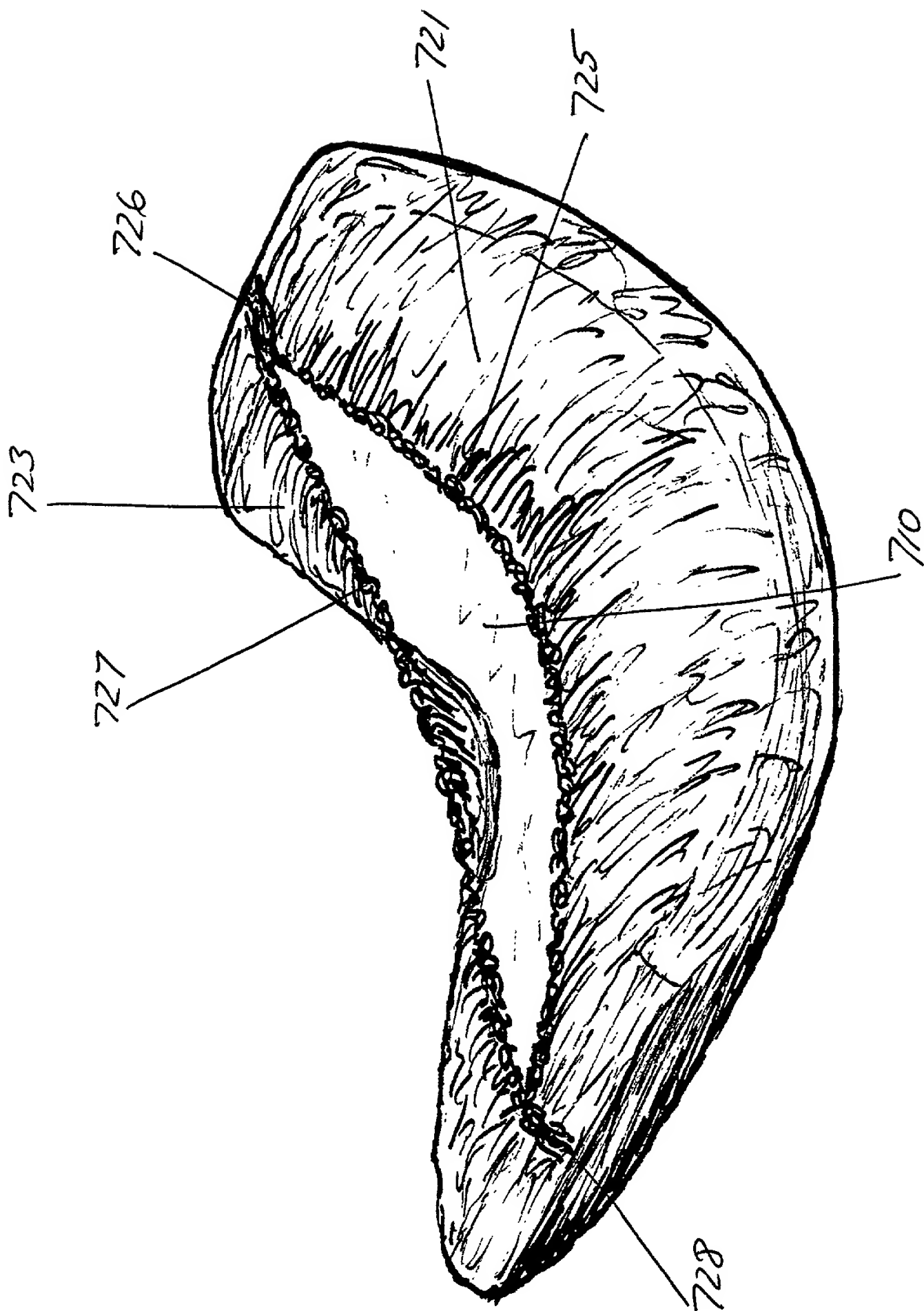


Fig 34

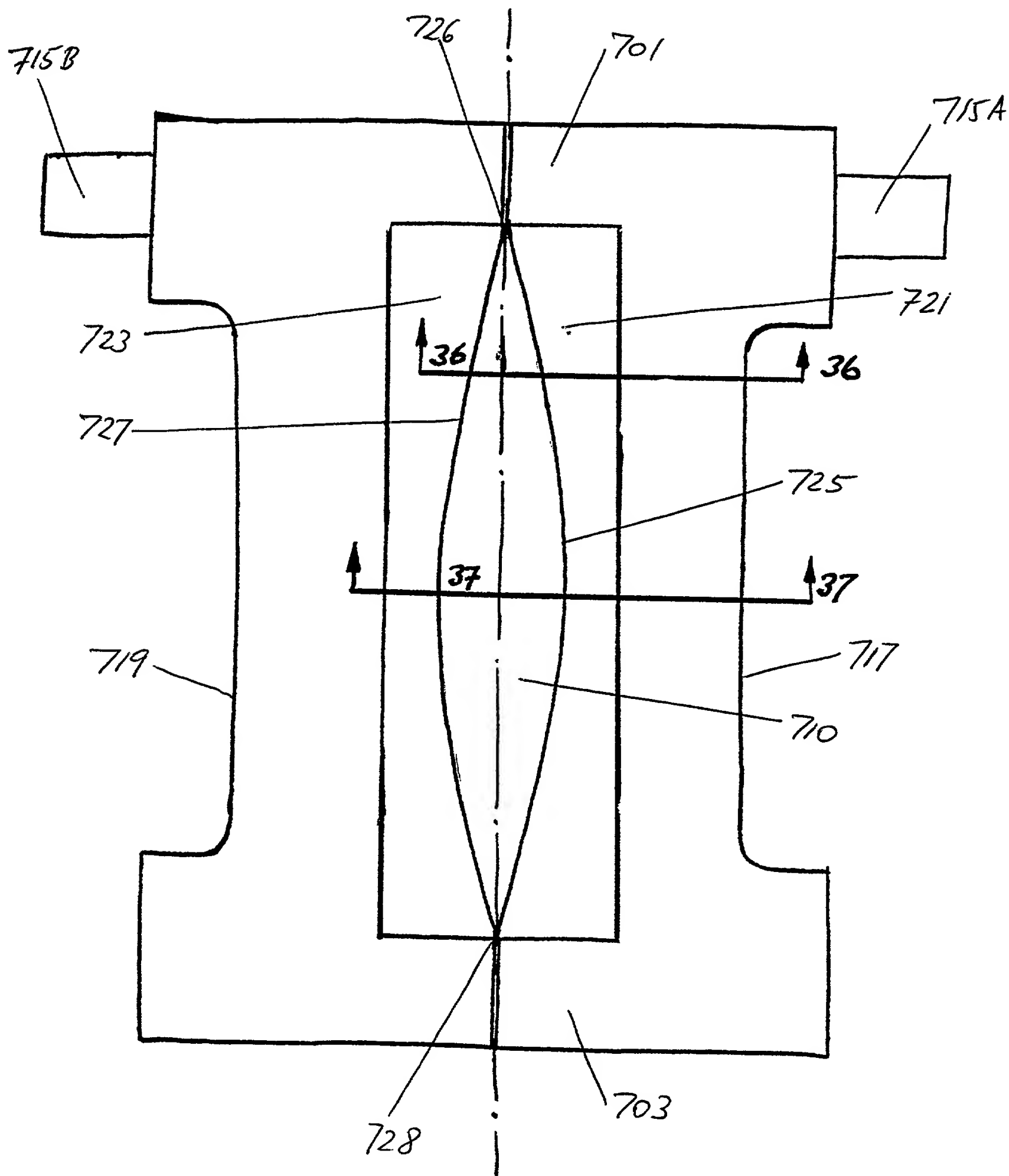


Fig 35

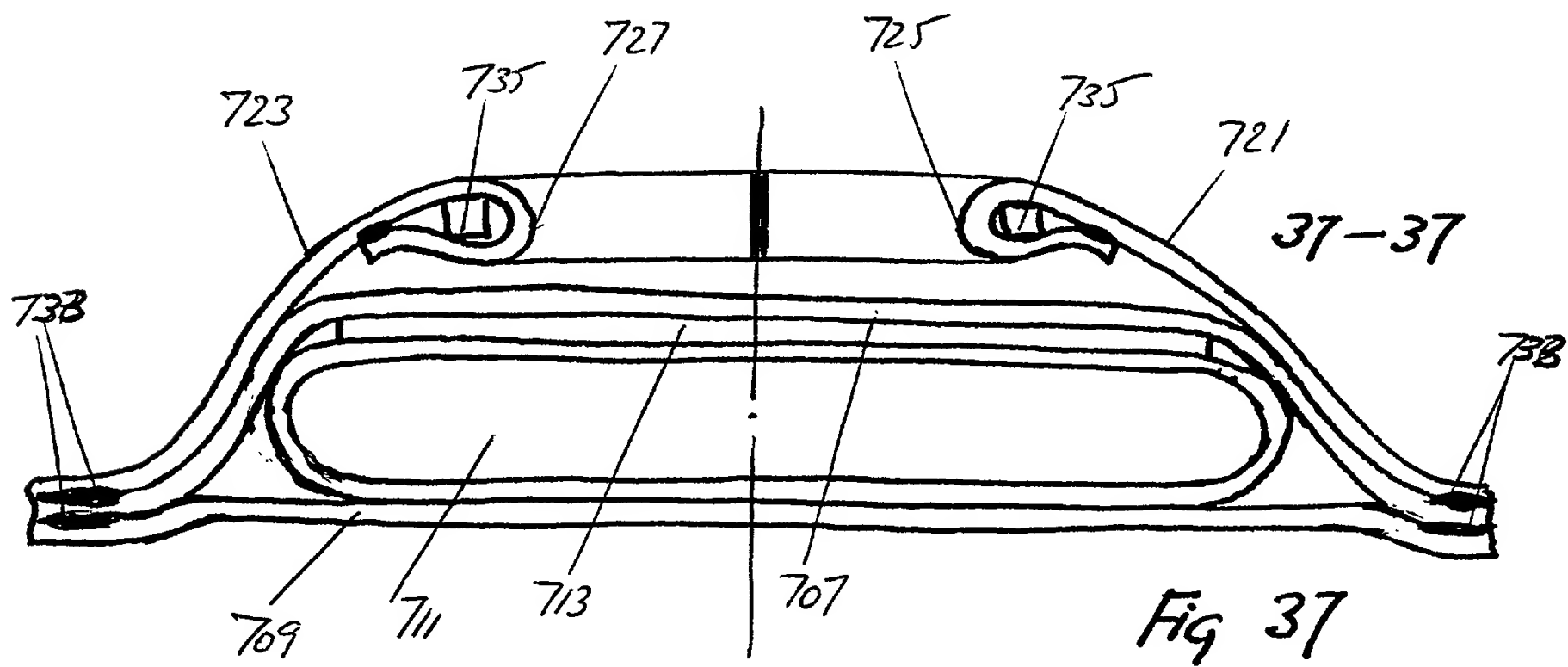
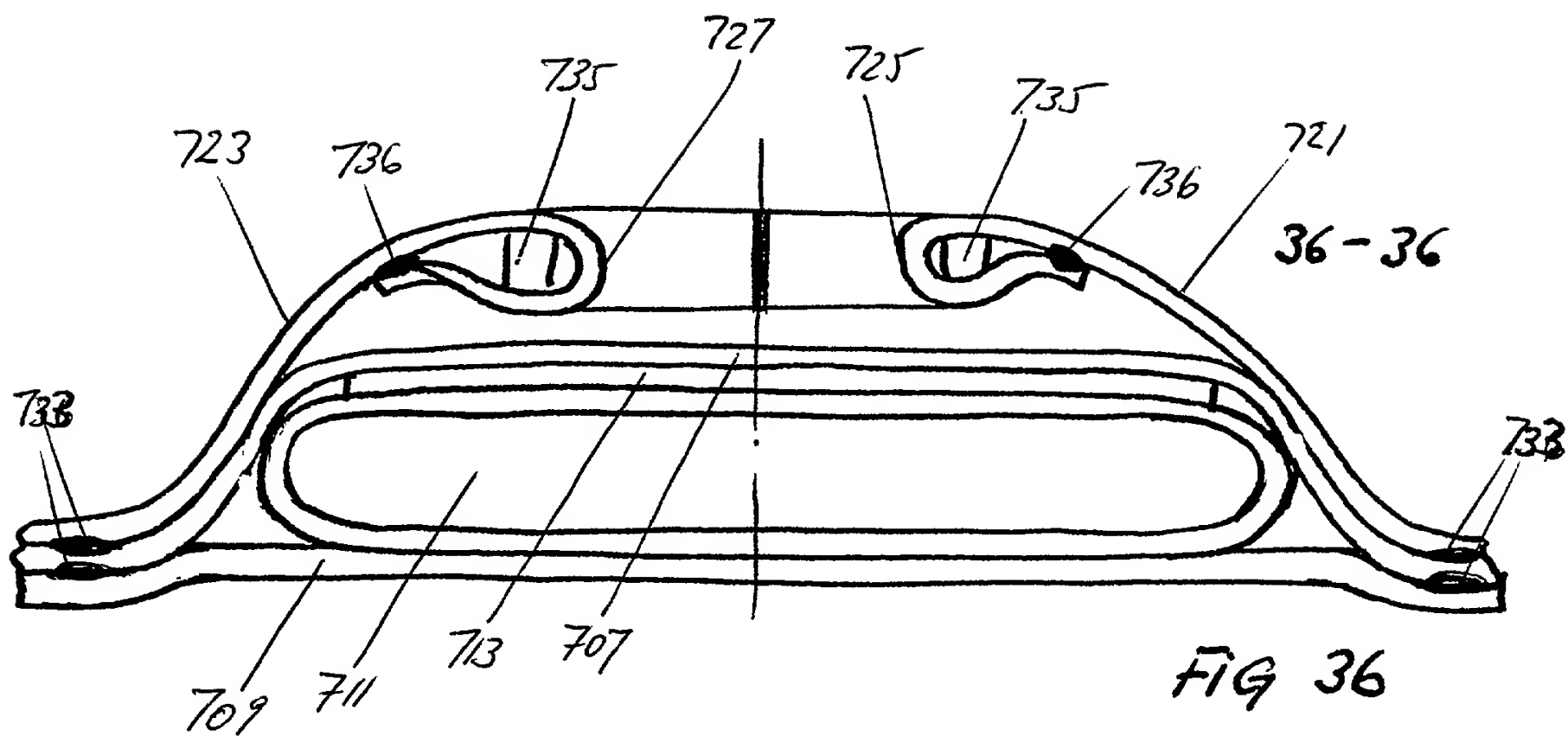


TABLE 1	
Summary of the results of the 1990-1991 survey of the health status of the population of the Republic of Serbia	
Population	10,000,000
Urban	5,000,000
Rural	5,000,000
Age	
0-14	1,000,000
15-64	6,000,000
65+	3,000,000
Sex	
Male	5,000,000
Female	5,000,000
Marital status	
Married	7,000,000
Single	1,000,000
Divorced	1,000,000
Widowed	1,000,000
Education	
Primary	4,000,000
Secondary	3,000,000
Higher	3,000,000
Occupation	
Managerial	1,000,000
Professional	2,000,000
Technical	2,000,000
Skilled	2,000,000
Unskilled	1,000,000
Unemployed	1,000,000
Retired	1,000,000
Health status	
Good	8,000,000
Fair	1,000,000
Poor	1,000,000
Very poor	1,000,000
Mortality	
Infant	10/1,000
Under-5	20/1,000
Adult	10/1,000
Life expectancy	75 years

My residence, post office address and citizenship are as stated below next to my name.

Disposable Elastic Absorbent Article Having Retaining Enclosures

 x is attached hereto.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

Priority Claimed

Yes	No
-----	----

Priority Claimed

(Number)	(Country)	(Day/Month/Year)	Yes	No
1	USA	15/03/2020		
2	USA	16/03/2020		
3	USA	17/03/2020		
4	USA	18/03/2020		
5	USA	19/03/2020		
6	USA	20/03/2020		
7	USA	21/03/2020		
8	USA	22/03/2020		
9	USA	23/03/2020		
10	USA	24/03/2020		
11	USA	25/03/2020		
12	USA	26/03/2020		
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14	USA	28/03/2020		
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84	USA	06/06/2020		
85				

(Number)	(Country)	(Day/Month/Year)	Yes	No
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(Number)	(Country)	(Day/Month/Year)	Yes	No
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I hereby claim the benefit under Title 35 United States Code Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35 United States Code Section 112, I acknowledge the duty to disclose material information as defined in Title 37 Code of Federal Regulations Section 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)	(Filing Date)	(Status)	(Patented, pending, abandoned)

[illegible]

I hereby appoint James W. Badie, Registration No. 20,968, as my attorney with full power of substitution and appointment of associate attorneys, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

Please address all communications to James W. Badie, Stoll, Miskin, Previto, Hoffman & Badie, Empire State Building, 350 Fifth Avenue, Suite 6110, New York, New York 10118.

Please direct all telephone calls to James W. Badie, (212) 244-5632.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Inventor's signature:

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Date: 13th of October 1998

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